PB82-203027

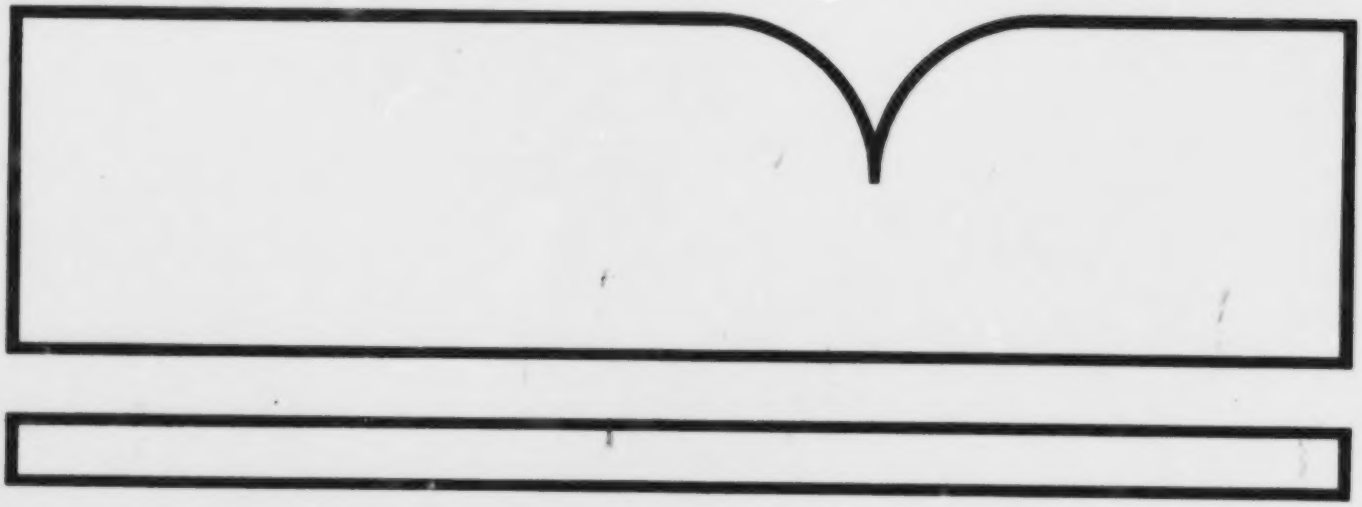
Conservation Tillage Test Results Allen County, Ohio for 1981

Allen Soil and Water Conservation District
Lima, OH

Prepared for

Environmental Protection Agency
Chicago, IL

Feb 82



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1981

CONSERVATION TILLAGE TEST RESULTS

ALLEN COUNTY, OHIO

ALLEN SOIL & WATER
CONSERVATION DISTRICT

U.S. ENVIRONMENTAL
PROTECTION AGENCY

SOIL CONSERVATION SERVICE

ALLEN COUNTY COOPERATIVE
EXTENSION SERVICE, OSU

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ALLEN SOIL & WATER CONSERVATION DISTRICT

219 W. Northern Ave. Lima, Ohio 45801 Phone 223-004

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To Allen SWCD Landowners:

The Allen Soil and Water Conservation District proudly presents to you these 1981 Conservation Tillage Results. This information is compiled from many of your neighbor's farms and represents our fourth year of testing conservation tillage systems.

Conservation tillage is continuously proving itself against the moldboard plow. The age is here where the improved minimum tillage tools and no-till planters belong on your farm. The disc-chisel, the offset disc and the no-till planter can save you time, fuel and soil, without sacrificing yields.

This years program was made possible through a grant supplied by the United States Environmental Protection Agency. It is a cooperative effort of the Allen Soil & Water Conservation District, the Soil Conservation Service and the Allen County Cooperative Extension Service. A special thanks is extended to all the participating farmers in this program, especially those that provided cultural data and weights from their plots. This information provided us with a broad spectrum of data from all areas of the county. Without the donation of their time and land, this program would not have been possible. Thanks is also extended to the Chevron Company for their assistance with the no-till corn contest and for providing one of the drills for the planting season. Also thanks to all the agricultural chemical companies who donated time and materials for the herbicide plots.

The data in this publication does not intend to represent research but rather observations and judgements on what we've seen in Allen County. We attempt to present the information unbiased and include all participants in the program. Understand that our tests are field size and many are not replicated. Finally the use of certain products or brand names is not meant to be an endorsement of their use by the Allen SWCD but only given to document the experiences of our demonstrations.

1981 marked the introduction of no-till soybeans and, no-till wheat into our program. Both of these tillage systems seem very promising but of course need more testing. With these additions however you now have the option of producing all your crops with conservation tillage methods.

The Allen SWCD is very appreciative of the funds received from the U.S. EPA to sponsor our conservation tillage program. The grant has enabled us to make much more equipment and manpower available to you than we could have with our own resources. We would hope that after reviewing this publication you are motivated to try a test on your farm. Our goal is for all cropland to be farmed using the best conservation methods available. Will you help us reach it.

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16. ABSTRACT

The major objective of the Allen County Project was to present data results from farmers that participated in the conservation tillage project. This data was to represent the observations and judgements made on ways to promote reduction of sediment and nutrients from entering streams. Cost of labor, equipment and energy are compared for no-till, conservation tillage and conventional tillage. Crop yields are also compared.

17. KEY WORDS AND DOCUMENT ANALYSIS

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THE ALLEN SWCD DEMONSTRATION PROJECT

This report marks the fourth of a series of reports published by the Allen SWCD. This report has been expanded as a result of a grant from the United States Environmental Protection Agency. In July of 1980 the Allen Soil and Water Conservation District was awarded a $562,500 from the U.S. EPA to conduct a Water Quality Demonstration Project. This grant was issued to promote ways of reducing sediment and nutrients from entering area streams and thereby being transported to Lake Erie. Methods that are being promoted to reduce sediment and nutrients losses are improvement of residential sewage systems and adoption of conservation tillage farming practices.

A total of $175,000 of the EPA grant is set aside for the residential sewage program and the remaining $387,500 is devoted to the conservation tillage promotional program. The residential sewage improvements are being coordinated thru the Allen County General Health District by an agreement signed with the Allen SWCD. The Districts main responsibility is administering the conservation tillage portion of the program to which this publication is devoted.

The Allen SWCD Conservation Tillage Program involves four different promotional aspects. They are as follows:

1. Providing technical assistance to farmers to improve their skills in conservation tillage management.
2. Providing conservation tillage equipment for farmers to use in a in a hands on approach. The proper use and operation of this equipment is stressed.
3. Conducting tours, training meetings, and field days to exhibit and explain the status of the conservation tillage plots.
4. Recording and publicizing the results and observation of those involved in the project.

A key element of the project is that participation from farmers is sought on a voluntary basis. Incentives used are equipment and technical help rather than financial payments to carry out the practice. In order to determine the workability of this approach both current and future conservation tillage acreages within the county is being monitored, to determine changes over the life of the program.

STATUS REPORT

This year was the first full year of grant monies use. This money was used basically for acquiring equipment, office supplies, and salaries. The equipment that was available in 1981 was as follows:

1. Two coulter-chisels and two offset discs for fall tillage work.
2. Four no-till planters for corn and soybeans.
3. Two no-till grain drills for soybeans.
4. Four weigh wagons for plot checks.

This equipment was available to any area farmer as long as they followed the guidelines set by the Allen Soil & Water Conservation District Board of Supervisors (see page 70).

Below is the accomplishments of the project for 1981. The conservation tillage figures represent only the farmers that participated in our program and do not include farmers using conservation tillage on their own. The no-till figures represents, to the best of our knowledge, the total acres of no-till in 1981 in Allen County.

1981 CONSERVATION TILLAGE PLOTS ACCOMPLISHED

TYPE PLOT	ACRES WITH DISTRICT EQUIPMENT	ACRES WITH FARMERS EQUIPMENT	# FARMS PARTICIPATING
No-Till Corn	687 Ac.	1,571 Ac.	70
No-Till Beans	309	491	28
No-Till Wheat	82	--	8
Double Crop	349	880	46
Soil Saver	776	20	27
Offset Disc	428	103	30
	2,631 Ac.	3,065 Ac.	

Total acreage in conservation tillage plots 5,696 ac.
Total acreage in No-tilled in Allen County. .4,369 ac.
Total number of landowners No-tilling 90

The acreage totals for no-till represents a 700% increase in no-till crop production with a 300% increase of farmers participation compared to our 1980 totals. Mulch tillage had a even larger increase of 1500% mainly due to the fact that equipment wasn't available for use in the fall of 1980.

OBSERVATIONS

The interest in conservation tillage is greatly increasing. Publicizing conservation tillage in both the area and on a nationwide scale is a very important tool in promoting this idea. Possibly, the most effective method is continued good results by area farmers. Word of mouth is a very strong communication tool.

The availability of tillage tools and planters to farmers has been a useful incentive in promoting conservation tillage. The availability of equipment lets the farmer try this different method of farming without having the need to first make an investment in equipment he has never tried. This reduces the initial risk in making a change.

Soil erosion is becoming an important issue in many peoples mind. In a survey of area farmers conducted this past year, practically all realized the necessity to use conservation tillage to reduce and minimize soil erosion. The realization that the soil is a valuable resource is an obstacle that is slowly being attained.

FUTURE PLANS

The District plans to continue its conservation tillage program similar to that of the past. It is anticipated that the amount of equipment available will remain the same. Farmers who have been in our program for several years will be slowly phased out of the equipment availability to encourage them to get their own and allow us to pick up new people. Training sessions haved proved to be very useful and will be expanded. Corn hybrid selection and no-till soybean and wheat production plot will receive more emphasis than in the past. The addition of no-till wheat will

provide the potential to use no-till on all the major crops grown in the county. Proper selection of herbicides is very critical but as we gain experience this is becoming less of a problem. We may not test herbicides as extensively as in the past but will continue to work towards management expertise in this area. Several new herbicides are coming to market and we will need to continue some no-till testing to see how they fit in.

Towards the end of the project we will reduce equipment availability and expect farmers to begin investing in their own. Technical assistance will then be the remaining tool available to promote conservation tillage to those who haven't yet accepted it. It is the hope of the District and United States Environmental Protection Agency that after several years of promoting conservation tillage in the area it will be a common and accepted practice among county farmers. However, we don't expect to get this job done overnight. Many years of effort will be needed.

ALLEN SOIL & WATER CONSERVATION DISTRICT
WATER QUALITY DEMONSTRATION PROJECT

GRANT PERIOD JULY 1980 - SEPTEMBER 1985

Amount of EPA Grant:	
Conservation Tillage Program	$387,500
Rural Sewage Program	175,000
	$562,500
Amount of Districts Matching Needed:	
In-Kind Contributions - 25%	187,500
Total Project Budget	$750,000

FISCAL YEAR 1981 - FINANCIAL STATEMENT

FY-81 Receipts	
Drawn Against EPA Grant	$171,473
Donations	139
	$171,612
FY-81 Expenses	
Salaries & Benefits	$ 27,714
Office Supplies & Rent	3,552
Demonstration Plot Supplies & Materials	6,290
Tillage Equipment Rental	8,516
Tillage Equipment Purchases	53,670
Rural Sewage Monitoring	6,254
Other	1,144
	$107,140
Balance - October 1, 1981	$ 64,472
	$171,612

NOTE: Value of farmers in-kind contributions is estimated at $80,270 for Fiscal Year 1981.

THE 1981 GROWING SEASON

The 1981 growing season was confusing, record breaking and discouraging. The untimely and excessive rainfalls caused severe difficulties in getting the crop in and reduced yields drastically. A further blow was dealt to area farmers when the rest of the country had ideal weather to produce bumper crops that resulted in lower market prices.

Table 2., shows that the winter of 1980-81 was dryer than normal. March was dry and warmer, and many farmers applied fertilizer and did tillage work but little planting was done. In April the rains began and never seemed to stop. April, May and June were some of the wettest months on record. Spring planting was limited to the few days between the storms. Many fields were planted too wet, but the choice was to plant too wet or not to plant at all. Many fields were planted thirty days later than normal with replanting a second or third time being common.

TABLE 2. 1981 ALLEN COUNTY RAINFALL
(Average of 3 Locations)

(rainfall in inches)

	JAN-MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT-DEC.	TOTAL
Rainfall	3.86	4.84	4.89	8.33	2.42	2.14	4.13	8.73	39.34
Normal	7.74	3.55	3.54	3.90	3.32	2.91	2.84	7.30	35.08
% of Normal	50%	136%	138%	214%	73%	73%	145%	120%	112%

In addition to delaying planting the rains caused severe erosion, the worst in recent memory. Fields that were no-till or mulch-tilled held their soil exceptionally well compared to plowed ground, but with these extreme rainfalls all soils did erode.

As noted in Table 2. the 'growing season' averaged 30.6" of rainfall compared to a normal of 22.4", a 37% increase. Harvest was also wet with poor dry down of the corn and poor harvesting ground conditions.

Growing degree days affects soil warming, crop growth, and grain dry down. The seasonal total from April 1 to October 31 was 64 degree days below normal. Furthermore, many of the days were received before the crop was in the ground. The first killing frost occurred on October 3 although some fields did survive this first frost to mature slightly more.

In summary, 1981 proved to be one of the wettest and most erosive ever. The severe weather magnified differences in soil types, drainage, etc. For this reason we do not believe these results are as reliable as past years work and this should be kept in mind when evaluating data contained in this report.

Also the weather for the past years is also important in evaluating the data in this booklet. The summary of 1980 was warm and wet. Ideal planting and harvesting condition but hot and dry weather during pollination. 1979 was cool and wet with a late Spring and late Fall. 1978 was a cold and wet Spring but hot and dry early summer. Corn was stressed but a late frost and good harvesting conditions was beneficial.

SOIL EROSION AND WATER QUALITY

Conservation tillage does reduce soil erosion and the control of soil erosion leads to a reduction of sediment entering streams and the associated pollutants which are attached to sediment, including phosphorous and herbicides.

In Table 3. , the tons of soil saved under different conservation tillage treatments are compared to fall plowing. The table is based on the Universal Soil Loss Equation for the acres involved in the Districts conservation tillage program for 1981. It was determined that the soil loss for fall plowing a blount soil of 2.5% slope and 250' length, 'typical' of Allen County, to be 5.4 tons/acre. As a result of the work done in the project this year nearly 19,000 tons of soil was prevented from being eroded. If all the acres in the conservation tillage program were fall plowed this year, the resulting erosion would have stripped 19 acres of all its topsoil (to a depth of 7 inches).

TABLE 3. TONS OF SOIL SAVED AS COMPARED TO FALL PLOWING

TREATMENT	SOIL SAVED PER ACRE	WITH DISTRICT EQUIPMENT ACRES	WITH DISTRICT EQUIPMENT TONS SAVED	WITH FARMERS EQUIPMENT ACRES	WITH FARMERS EQUIPMENT TONS SAVED	TOTAL TONS SAVED
No-Till	4.7 tons	1078	5067	2026	9522	14,589
Offset Disc	2.9	428	1241	103	299	1,540
Coulter-Chisel	2.9	776	2250	20	58	2,308
						18,437

Erosion can be controlled by managing the previous crop's residues after harvest, over winter, and thru the time of planting. The amount of crop residue on the surface can be estimated from crop yields (Table 4.) and reductions from tillage and decomposition estimated by using factors from Table 5.

TABLE 4. ESTIMATING QUANTITIES OF RESIDUE

CROP	RESIDUE PRODUCED REV. BUSHEL OF GRAIN (LB.)	FACTOR TO CONVERT TO CORN EQUIVALENT
Corn	60	X1
Soybeans	50	X2
Wheat	100	X2

TABLE 5. RESIDUE REDUCTION FACTORS

Decomposition Loss Over Winter	25%
Offset Disc (Fall)	50%
Chisel Plow - Straight Shovels (Fall)	25%
Chisel Plow - Twisted Shovels (Fall)	50%
Tandem Disc (Spring)	30%
Field Cultivator (Spring)	30%
Coulter-Chisel (Fall)	50%

These factors can be used individually or in succession to reflect various combinations of tillage practices. These factors were used to develop the chart below.

The following definitions and assumptions were made:

1. Offset Disc used in the fall. Conditions permit amount of residue buried to be 50% or less.
2. Chisel Plow used in fall. Conditions and type of tool limit amount of residue buried to be 25% or less. "Soil Saver" type chisels equipped with discs and twisted shovels may incorporate up to 50% of the crop residue.
3. Tandom disc is used in Spring. Conditions and size of disc permit amount of residue to be 30%.
4. Spring tillage for fall offset disced or fall chiseled fields is limited to two trips with a field cultivator or disc.
5. Previous crop residue in terms of corn equivalent:

Soybeans Stubble:	40 bu. x 50 lb./bu. x 2 =	4,000 lbs./ac.
Corn Stubble	133 bu. x 60 lb./bu. x 1 =	8,000 lbs./ac.
Wheat Stubble	60 bu. x 100 lb./ac.x 2 =	12,000 lbs./ac.

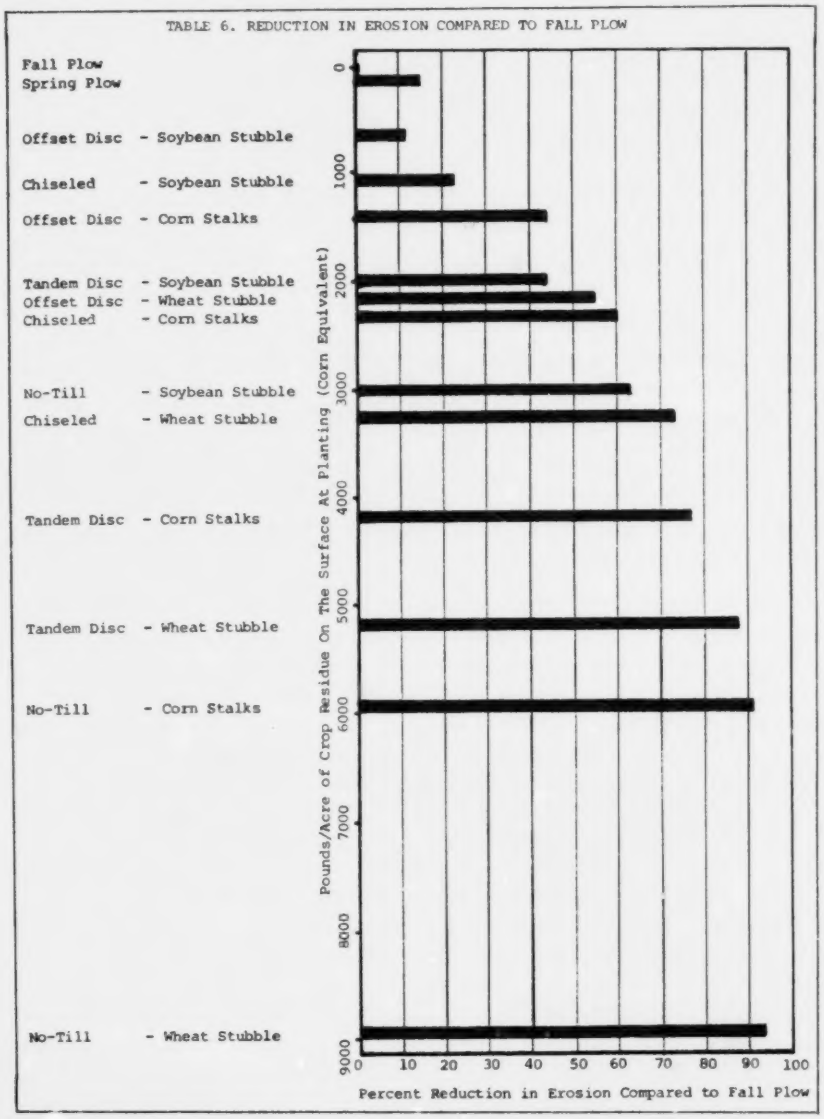

Table 6. does show the percent reduction of several conservation tillage practices as compared to fall plowing. One thing to note is that discing and chiseling soybean stubble does not significantly reduce soil erosion and therefore is not recommended as a conservation practice. This chart can be very useful in comparing the amount of reduction of soil erosion on your farm based upon the assumptions given.

CONSERVATION TILLAGE CORN PLOTS

GENERAL CONDITIONS

This field trial program was developed to help Allen County farmers evaluate the performance of conservation tillage on their farms. It was designed to help farmers collect data necessary to judge their success at using conservation tillage methods.

The tillage field trials compared two or more of the following tillage practices: fall or spring chisel plowing, fall or spring discing, no-till planting, spring plowing (done after March 1), and fall plowing (check strip).

GUIDELINES

Procedures were followed to insure that tillage was the only variable. Both agency personnel and farmers made observations and kept records throughout the growing season. Responsibility of each was as follows:

FARMERS:

1. Used one or more conservation tillage systems adjacent to a check plot. Established plots wide enough to allow normal operations for tillage, planting and harvesting.
2. Selected trial locations that were reasonably similar in soils, fertility, drainage, and productivity.
3. Kept reliable records on rainfall, planting dates, tillage operations and fertilizer and pesticides used.
4. Harvested and weighed plots with help from sponsors.

AGENCY PERSONNEL:

1. Measured field area, population at emergence, barren stalks, and final harvest population.
2. Determined amount of surface residue retained and estimated annual soil erosion for each system.
3. Provided a weigh wagon, moisture tester, and scale operator to assist at harvest.
4. Calculated yields, expenses, and profitability of the various systems. Published the information.

MISCELLANEOUS ITEMS

1. All check and test strips had same prior year residue before primary tillage. No-till plantings were made directly into residue without seedbed preparation.
2. Corn hybrid and total N, P, K was same across all tillage plots.
3. Residual type herbicides and soil insecticides were the same across all plots. Contact type herbicides were used or omitted depending upon vegetation existing at planting time. Rates were adjusted according to residue.
4. Cultivators, rotary hoes, and or post-emergent herbicides were used as necessary to prevent crusting and weed infestations.
5. Each strip was machine harvested for grain with a minimum of one pass across entire field.

CORN PLOTS PLANTED IN WHEAT STUBBLE

Ned Althaus, Napoleon Road, Richland Township

	TREATMENT	HYBRID	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	Spring Plow	Jacques 187-A	--	24.4%	146.7	$319.49	$122.25
2.	No-Till	Jacques 187-A	24,000	28.4%	134.9	278.42	90.84

1. Spring plowed, disced, field cultivated, planted, cultivated.
2. No-till planted with John Deere planter with 1" fluted coulters.

Planted May 4 with a seed drop of 27,100 for no-till and 25,000 for the plow. Sprayed with 1 qt. Paraquat, 4 lbs. Bladex and 2.5 pts. Dual 8E, with 37.5 gal. of 28% as a carrier. Fertilizer included 100 lbs. 15-30-15 in the row, 200 lbs. of 21-0-0 and 375 lbs. of 28% for a total of 162-30-15. Sprayed 1 qt. Sevin XLR for cutworms. Isotox seed treatment used.

Bluffton Vo-Ag, Hancock Co. Line Road, Richland Township

	TREATMENT	HYBRID	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	Fall Plow	Pioneer 3780	--	N/A	N/A	N/A	N/A
		Trojan TXS-115A	--	35.4%	102.2	$186.06	$-15.41
2.	Spring Plow	Pioneer 3780	--	19.9%	98.7	226.45	5.66
		Trojan TXS-115A	--	32.3%	114.8	221.32	.53
3.	Offset Disc	Pioneer 3780	--	22.4%	85.9	191.82	-24.76
		Trojan TXS-115A	--	37.1%	95.1	164.34	-51.74
4.	Coulter-Chisel	Pioneer 3780	--	22.2%	103.5	230.37	13.29
		Trojan TXS-115A	--	35.1%	88.8	161.04	-56.04
5.	No-Till	Pioneer 3780	--	20.0%	98.1	225.31	16.19
		Trojan TXS-115A	--	36.9%	92.0	162.10	-47.02

1. Fall plowed, field cultivated, disced, field cultivated, planted.
2. Spring plowed, field cultivated, disced, field cultivated, planted.
3. Fall offset disced, field cultivated, disced, field cultivated, planted.
4. Fall coulter-chiseled, field cultivated, disced, field cultivated, planted.
5. No-till planted with the 1" fluted coulter White planter.

Planted on May 23 at a seed drop of 26,000. Sprayed with 2 lbs. Bladex 80W and 2.3 qt. Lasso with 43 gal. of 28% as a carrier. No-till was also sprayed with 1 qt. Paraquat. Fertilization included 50 lbs. of 0-46-6 and 100 lbs. 0-0-60 broadcast in the fall, plus 100 lbs. of 18-46-0, 82 lbs. of 0-44-0 and 117 lbs. of 0-0-60 broadcast in the Spring. No-till received 425 lbs. of 28% for a total of 137-105-132. All other plots received 145 lbs. of 82% for a total of 137-105-132. 13 lbs. Furadan banded at planting for insect control.

Calvin Kiracofe, Sugar Creek Road, Bath Township

	TREATMENT	HYBRID	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	No-Till	Robinson 3827	--	26.4%	135.9	$288.60	$ 76.23

Planted on May 5 with the 1" fluted coulter White planter at a seed drop of 26,100. Sprayed with 1 qt. Paraquat, 1½ lbs. Aatrex, 2½ lbs. Princep and 2 qt. Lasso. Fertilization included 150 lbs. 0-0-60 broadcast, 150 lbs. 18-46-0 in the row, 214 lbs. of 28% and 152 lbs. of 82% for a total of 212-69-90. 10 lbs. Furadan banded at planting for insect control.

CORN PLOTS PLANTED IN WHEAT STUBBLE CONT'D.

Ralph Fischer, Kiggins Road, Marion Township

	TREATMENT	HYBRID	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	Offset Disc	Walton WX-40	22,000	31.9%	130.6	$254.52	$ 23.16
2.	No-Till	Walton WX-40	21,000	34.6%	91.6	163.16	-73.35

1. Fall offset disced, field cultivated, planted.
2. No-till planted with 1" fluted coulter John Deere planter.

Planted on May 8 with a seed drop of 26,100. Sprayed with 2 qt. Lasso and 2 lbs. Aatrex 80W with 21 gal. of 28% as a carrier. No-till also received half sprayed with 1 qt. Paraquat and half with 1 qt. Roundup. Fertilization included 300 lbs. 8-32-16 broadcast in the fall, 200 lbs. of 82%, 210 lbs. of 28% and 316 lbs. of 6-24-24 in the row for a total of 267-172-124. 10 lbs. Furadan used for insect control. 3.75 lbs. of Sevin 80W used for armyworm control in no-till.

Elvet Foulkes, Thayer Road, Monroe Township

	TREATMENT	HYBRID	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	Spring Plow	Pioneer 3518	21,400	25.9%	123.6	$267.80	$ 33.80
2.	No-Till	Pioneer 3518	20,300	25.5%	132.7	284.81	46.09

1. Spring plowed, field cultivated, planted.
2. No-till planted with 1" fluted coulter John Deere planter.

Planted on April 28 with a seed drop of 24,000. Sprayed with 1 qt. Paraquat plus spreader, 1 lbs. Aatrex and 3 lbs. Bladex with 50 gal. of 28% as a carrier. Fertilization included 350 lbs. of 6-15-40. Broadcast in the Spring, 200 lbs. 6-24-24 in the row and 500 lbs. of 28% for a total of 173-101-188. Isotox used for insecticide. 2 lbs. Toxaphene used for armyworm control in the no-till.

Larry Vandemark, Wapak Road, American Township

	TREATMENT	HYBRID	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	Fall Plow	Super Crost 2350	20,600	22.9%	133.0	$294.67	$ 49.60
2.	No-Till	Super Crost 2350	21,800	27.6%	117.7	243.49	17.49

1. Fall plowed, field cultivated, planted, rotary-hoed twice, cultivated.
2. No-till planted with a John Deere planter with coulters.

Planted no-till on May 25 at a seed drop of 27,700. Planted plow on May 5 at a seed drop of 27,700. Sprayed no-till with 1qt. Paraquat plus spreader, 1½ lbs. Princep and 3 lbs. Bladex 80W with 74 gal. of 28% as a carrier. Sprayed plow with 1 qt. Aatrex and 3 lbs. Bladex with 60 gal. of 28% as a carrier. Fertilization for no-till was 118 lbs. of 0-0-60 broadcast, 18 gal. of 10-34-0 in the row and 735 lbs. of 28% for a total of 224-61-71. Fertilization for plow was 187 lbs. of 0-0-60, 52 lbs. of 0-44-0 broadcast, 18 gal. of 10-34-0 in the row, 600 lbs. of 28% and 132 lbs. of 82% sidedress for a total of 294-84-112. 9 lbs. of Counter used for insect control. Sprayed 1 qt. Sevin on no-till for armyworm and cutworm control

CORN PLOTS PLANTED IN WHEAT STUBBLE CONT'D.

Harold Pohlman, St. Marys Road, Amanda Township

	TREATMENT	HYBRID	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	Fall Plow	Cargill 922 + Pioneer 3541	23,800	25.7%	151.1	$332.18	$ 77.30
2.	No-Till	Cargill 922+924	21,800	27.2%	128.6	268.69	17.06

1. Fall plowed, field cultivated twice, planted, cultivated once.
2. No-till planted with a Allis Chalmers fluted coulter planter.

Planted May 20 with a seed drop of 24,000. Sprayed no-till with 1 qt. Paraquat and spreader, 1½ lb. Princep, and 3 lbs. Bladex with 64 gal. of 28% as a carrier. Ten lbs. of Bladex granular was banded in the plow plot. Fertilization included 100 lbs. 21-0-0, and 100 lbs. 0-46-0 and 200 lbs. 0-0-62 broadcast in fall and 300 lbs. 13-34-14 in the row. No-till also received 640 lbs. of 28% for a total of 240-148-166. Plow plot received 244 lbs. of 82% with N-Serve in the fall for a total of 260-148-166. 13 lbs. Furadan banded at planting for insect control.

Hutchinson Bros. Sugar Creek Road, Jackson Township

	TREATMENT	HYBRID	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	Fall Plow	Sohigro 57	22,000	26.6%	120.2	$252.74	$ 1.46
2.	Coulter-Chisel	Sohigro 57	22,000	25.4	118.6	256.50	8.19

1. Fall plowed, disced twice, disced again, cultimulched, planted.
2. Fall coulter-chiseled, disced twice, disced again, cultimulched, planted.

Planted on May 22 with a seed drop of 21,500. Sprayed with 1½ lbs. Atrazine 9-0 and 2 pts. of Prowl. Fertilization included 150 lbs. 18-46-0 and 250 lbs. 0-0-60 broadcast, 183 lbs. 82%, and 240 lbs. 8-38-18 in the row for a total of 196-160-193. 10 lbs. of Counter was used for insect control.

Charles Plikerd, Zion Church Road, Amanda Township

	TREATMENT	HYBRID	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	Fall Plow	Pioneer 3780	25,000	20.3%	132.5	$315.70	$ 94.73
2.	Coulter-Chisel	Pioneer 3780	23,000	19.1%	154.5	355.07	132.53
3.	No-Till	Pioneer 3518 + Variety Plots	26,700	30.2%	105.4	210.29	-24.25

1. Fall plowed, field cultivated twice, planted.
2. Coulter-chiseled, disced, field cultivated, planted.
3. No-till planted with 1" fluted coulter John Deere planter.

Planted on May 22 at a seed drop of 26,000. Sprayed no-till with 1 qt. Paraquat, 3 lbs. Princep 80W, 2 lbs. Aatrex 80W and 1/2 pt. Banvel with 71 gal. of 28%. Sprayed coulter-chisel with 1½ lbs. Aatrex, 1 qt. Dual and ½ pt. Banvel with 14 gal. of 28% as a carrier. Sprayed plow plot with 1.3 lbs. Aatrex and 1 qt. Dual. Fertilization included 100 lbs. 0-46-0 and 200 lbs. 0-0-60 broadcast in the fall plus 170 lbs. of 8-32-16 in the row. No-till also received 714 lbs. of 28% for a total of 214-100-147. Chisel and plow plot also received 195 lbs. of 82% and 143 lbs. of 28% for a total of 214-100-147. 13 lbs. of Furadan used on all plots. 1/2 lb. Dylox used for control of armyworms.

CORN PLOTS PLANTED IN WHEAT STUBBLE CONT'D.

John VanMeter, Thayer Road, Monroe Township

	TREATMENT	HYBRID	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	No-Till	Pioneer 3780	19,000	22.8%	90.0	$199.46	$ 19.21

Planted on June 6 with the International planter without coulters with a seed drop of 25,000. Two trips with a light disc was performed before planting to dry out the ground. Sprayed with 1 pt. Paraquat with spreader, 2 lbs. Atrazine 80W and 2 lbs. Bladex 80W. Fertilizer included 43 lbs. of 0-0-26, 135 lbs. of 11-46-24 in the row and 540 lbs. of 28% for a total of 174-62-52. No insecticide used.

Don Spallinger, Phillips Road, Jackson Township

	TREATMENT	HYBRID	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	No-Till	Pioneer 3541	--	25.3%	87.0	$187.00	$-26.54
2.	No-Till	Hybrid Plots	16,000	31.7%	86.9	172.33	-41.20

Planted May 25 with the 1" fluted coulter White planter at a seed drop of 24,500. Sprayed with 1 qt. Paraquat, 2.5 lbs. Aatrex, 2.5 pts. Dual, 2 lbs. Bladex with 55 gal. of 28% as a carrier. Fertilization included 150 lbs. of 6-24-24 broadcast, 130 lbs. of 6-24-24 in the row and 590 lbs. of 28% for a total of 182-67-67. 10 lbs. Furadan banded at planting for insect control. 2 lbs. of Toxaphene for control of armyworms.

Greg Herron, Thayer Road, Monroe Township

	TREATMENT	HYBRID	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	No-Till	Pioneer 3780 & Pickering 488	21,300	17.8%	124.1	$290.75	$103.50

Planted May 23 with the 1" fluted coulter White planter at a seed drop of 25,800. Sprayed 1 qt. Paraquat and spreader, 2½ lbs. Aatrex, 2½ lbs. Princep and 1 qt. Dual with 50 gal of 28% as a carrier. Fertilization included 130 lbs. 18-46-0 in the row and 50 lbs. of 0-0-60 broadcast ahead of planting and 500 lbs. of 28% for a total of 163-60-30. 1 qt. Toxaphene used for insect control.

Richard Bowdle, Crabb Road, Perry Township

	TREATMENT	HYBRID	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	No-Till	Landmark 626	--	35.9%	101.4	$182,74	$-26.44

Planted May 31 with a John Deere 1" fluted coulter planter in 38 inch rows with a seed drop of 25,000. Sprayed with 2 qt. Paraquat, 1 qt. Dual 2.5 lbs. Aatrex 80W with .5 pt. AquaMate with 50 gal. of 28% used as carrier. Fertilizer included 150 lbs. of 0-0-60 broadcast, 160 lbs. of 18-46-0 in the row and 500 lbs. of 28% for a total of 169-74-90. 10 lbs. of Furadan banded at planting for insect control.

CORN PLOTS PLANTED IN WHEAT STUBBLE CONT'D.

Lewis Bassett, Thayer Road, Bath Township

	TREATMENT	HYBRID	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	Offset Disc	Robinson E5619	19,900	32.5%	115.3	$223.11	$ 13.83
2.	Coulter-Chisel	Robinson E5619	17,200	32.6%	112.6	214.72	5.65
3.	No-Till	Robinson E5619	18,500	31.4%	89.3	175.53	-14.32

1. Fall offset disced, field cultivated, disced, planted.
2. Fall coulter-chiseled, field cultivated, disced, planted.
3. No-till planted with John Deere planter with 1" fluted coulters.

Planted on May 25 with a seed drop of 26,100. Sprayed no-till with 1.5 pts. Paraquat with spreader, 1.5 lbs. Aatrex 9-0, and 2 qts. Bladex 4L with 30 gal. of 28% as a carrier. Sprayed disc and chisel plot with 1.75 lbs. Aatrex 9-0 and 2 pt. Dual 8E. Fertilization included 200 lbs. 0-0-60 broadcast in the fall and 170 lbs. of 18-46-0 in the row. No-till also received 300 lbs. of 28% for a total of 115-8-120. Disc and chisel also received 200 lbs. of 82% for a total of 185-78-120. 6 lbs. of Dyfonate banded at planting for insect control. 1 lb. of Dylox used in the no-till for armyworm control.

Ron Bowsher, Kill Road, Spencer Township

	TREATMENT	HYBRID	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	Fall Plow	Pioneer 3541	22,500	21.0%	116.5	$264.97	$ 51.64
2.	Chisel	Pioneer 3541	22,500	20.1%	113.4	257.76	44.48

1. Fall plowed, field cultivated twice, harrowed twice, planted.
2. Fall coulter-chiseled, field cultivated twice, harrowed twice, planted.

Planted May 25 with a seed drop of 25,000. Sprayed with 1 qt. Dual and 3/4 pt. Aatrex with 20 gal. of water as a carrier. Fertilization included 300 lbs. 4-11-45 and 50 lbs. 45-0-0 broadcast in the fall, 140 lbs. 82% preplant and 250 lbs. 7-25-5 in the row for a total of 167-96-148. No insecticide applied.

Noel Brown, McPheron Road, Auglaize Township

	TREATMENT	HYBRID	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	Spring Plow	Pioneer 3780	--	25.4%	114.1	$246.66	$ 17.86
2.	Offset Disc	Pioneer 3780	--	25.2%	112.4	241.49	15.68
3.	No-Till	Pioneer 3780	--	24.4%	91.4	200.34	-7.68

1. Spring plowed, disced twice, danish tine field cultivator in front of planter.
2. Fall offset disced, disced twice, danish tine field cultivator in front of planter.
3. No-till planted with the John Deere planter with 1" fluted coulters.

Planted no-till on May 26 with a seed drop of 26,100. Planted plow and disc plots on May 23 with a seed drop of 25,400. Sprayed all plots with 3 lbs. Aatrex in the fall and 2½ qt. Bicep with 54 gal. of 28% as a carrier. Fertilization included 200 lbs. 0-0-60 broadcast in the fall, with no-till receiving 200 lbs. 8-32-16 in the row while plow and disc received 200 lbs. 10-34-0 in the row. 536 lbs. of 28% is also included. Totals for no-till are 166-64-152 and, plow and disc are 170-68-120. 8 lbs. of Counter was used in the plow and disc plots while 13 lbs. of Furadan was banded at planting for no-till.

CORN PLOTS PLANTED IN WHEAT STUBBLE CONT'D.

Bob Etzkorn, Kill Road, Marion Township

		TREATMENT	HYBRID	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	a)	Plow	DeKalb XL55	22,400	24.0%	151.3	$332.39	$+90.96
	b)	Plow	Cargill 921	22,400	23.4%	166.1	367.04	125.61
2.	a)	No-Till	DeKalb XL55	22,750	31.0%	105.4	209.46	-59.13
	b)	No-Till	Cargill 921	22,750	31.0%	102.4	203.45	-65.14

1. Fall plowed, field cultivated once, harrowed once, rotary-hoed once, planted.
2. No-till planted with John Deere 1" fluted coulter planter.

Planted both plots on May 23 with no-till having a seed drop of 26,200 and plow at 24,200. Sprayed no-till with 1 pt. 2-4D and 1/2 pt. Banvel with sticker before planting plus 1 qt. Paraquat, 5 lbs. Princep 80W and 1/3 lb. Bladex 80W with sticker. Plow plot received 1/3 pt. 2-4-D, 1/2 pt. Banvel and 13 lbs. Bladex 80W that was banded. Fertilizer for no-till was 100 lbs. 18-46-0 and 180 lbs. 0-0-60 broadcast in the fall and 257 lbs. 10-34-0 in the row plus 860 lbs. 28% for a total of 285-133-108. Plow treatment received 100 lbs. 18-46-0 and 180 lbs. 0-0-60 broadcast in the fall, 257 lbs. 10-34-0 in the row and 268 lbs. of 82% plus N-Serve for a total of 264-133-108 8 lbs. of Counter was used for insecticide with no-till also receiving 1.1 lbs. Dylox for armyworm control.

Dennis Bassett, Stewart Road, Monroe Township

	TREATMENT	HYBRID	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	Offset Disc	Cargill 921	--	30.7%	145.1	$301.46	$104.37
2.	Chisel	Cargill 921	--	28.1%	134.1	275.82	71.41
3.	No-Till	Cargill 921	--	28.5%	82.7	161.90	-57.26

1. Fall offset disced, disced twice, planted.
2. Fall chiseled plowed, disced twice, planted.
3. No-till planted with the White planter with 1" fluted coulters.

Planted May 23 with a seed drop of no-till at 28,000 and, disc and chisel at 25,800. Sprayed all treatments with 2.5 pts. Dual 8E and 1.75 lbs. Aatrex 9.0 with no-till also receiving 30 lbs. Bladex 80W and 1 qt. Paraquat. Fertilization included 200 lbs. 0-0-60 broadcast in the fall, 100 lbs. 18-46-0 and 100 lbs. 21-0-0 broadcast in the Spring, and 50 lbs. 6-24-24 in the row with no-till receiving 400 lbs. of 28%, and disc and chisel received 140 lbs. 82%. Total fertilization for no-till is 154-58-132, and disc and chisel plots is 157-58-132. 6.0 lbs. Dyfonate used for insect control on all plots.

Lee Turner, Gossard Road, Auglaize Township

TREATMENT	HYBRID	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
No-Till	Pioneer 3541	--	24.9%	108.9%	$236.07	$ 33.86

Planted on May 25 with a 1" fluted coulter John Deere planter at a seed drop of 26,000. Sprayed with 1 qt. Paraquat plus spreader, 2¼ lbs. Aatrex 80W, 1 pt. Banvel and .56 gal. of Lasso, with 53 gal. of 28% as a carrier. Fertilization inlcuded 71 lbs. of 46-0-0, 131 lbs. of 18-36-0 and 120 lbs. of 0-0-60 plus 534 lbs. of 28%, For a total of 205-60-72. 2 qts. Toxaphene and .05 lbs. Isotox used for insect control.

CORN PLOTS PLANTED IN CORN STALKS

Sam Blythe, Kill Road, Spencer Township

	TREATMENT	HYBRID	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	Fall Plow	Pioneer 3541	--	25.4%	125.3	$209.53	$ 49.31
2.	Coulter-Chisel	Pioneer 3541	22,000	24.6%	138.5	2[illegible].97	80.29

1. Fall plowed, field cultivated three times, planted.
2. Fall coulter-chisel, field cultivated three times, planted.

Planted on May 24 at a seed drop of 26,500. Sprayed with 3.2 qts. Bicep with 10 gal. of water as a carrier. Fertilization included 300 lbs. of 3-10-30 broadcast in the fall, 200 lbs. of 82% and 250 lbs. of 7-23-5 in the row for a total of 191-88-103. 8 lbs. of Counter was banded for insect control.

Kurt Winegardner, Lawrence Road, Auglaize Township

	TREATMENT	HYBRID	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	Fall Plow	Cargill 921	20,000	27.2%	147.2	$309.24	$ 67.67
2.	Spring Plow	Cargill 921	18,000	26.8%	146.4	310.73	69.34
3.	Offset Disc	Cargill 921	23,000	27.2%	149.9	315.00	75.89
4.	No-Till	Cargill 921	23,000	27.0%	133.0	282.37	45.43
5.	No-Till	Cargill 921	20,000	29.2%	88.1	179.52	-53.07

1. Fall plowed in cornstalks, disced once, planted.
2. Spring plowed in cornstalks, disced once, planted.
3. Offset disced in cornstalks, disced once, planted.
4. No-till in cornstalks, planted with the International planter without fluted coulter.
5. No-till in clover sod, planted with the International planter without fluted coulter.

Planted May 23 at a seed drop of 24,100. Sprayed 1 qt. of Paraquat with X-77 spreader and 3.2 qt. of Bicep with 45 gal. of 28% as a carrier. Fertilizer included 400 lbs. of 16-15-40 broadcast, 189 lbs. of 6-24-24 in the row and 446 lbs. of 28% for a total of 200-105-205 13 lbs. of Furadan banded at planting for insect control.

Irvin Grone, Grone Road, Marion Township

	TREATMENT	HYBRID	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	Plow	Beck's 65X	22,300	37.2%	117.1	$181.34	$ 21.98
2.	Offset Disc	Beck's 65X	21,600	37.0%	107.9	177.43	13.56
3.	Coulter-Chisel	Beck's 65X	22,000	36.2%	131.1	186.54	46.47
4.	No-Till	Beck's 65X	17,100	38.5%	95.2	170.71	- 8.21

1. Fall plowed, planted.
2. Fall offset disced, planted.
3. Fall coulter-chiseled, field cultivated, planted.
4. No-till planted with 1" fluted coulter John Deere planter.

Planted May 22 with a seed drop 26,100. Sprayed with 1.8 qt. of Bladex, 2 lbs. Aatrex and .5 qts. of Banvel. Fertilizer included 150 lbs. of 0-0-60 broadcast, 256 lbs. of 13-33-16 in the row and 223 lbs. of 28% used as a carrier for a total of 96-85-131. No insecticide used.

CORN PLOTS PLANTED IN CORN STALKS CONT'D.

Dwight Suter, Road Q, Riley Township, Putnam Co.

	TREATMENT	HYBRID	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	Chisel	Sohigro 57	--	23.0%	104.0	$231.17	$ 43.70
2.	No-Till	Sohigro 57	14,600	28.0%	96.0	200.01	10.81

1. Chiseled, field cultivated, planted, rotary-hoed once.
2. No-till planted with John Deere 2" fluted coulter planter, rotary-hoed once.

Planted on May 4 at a seed drop of 27,000. Sprayed no-till with 1 pt. Paraquat, 1 qt. dual 8E and 2 qt. Bladex 4L. Sprayed chisel with 1 qt. Dual 8E, 1 qt. Bladex 4L and 1 qt. Aatrex 4L. Fertilization for no-till inlcuded 202 lbs. of 0-0-60 and 625 lbs. of 28% for a total of 175-0-121. Fertilization for chisel was 202 lbs. of 0-0-60 and 148 of 82% for a total of 121-0-121, 10 lbs. Counter banded at planting for insect control.

Gerald Brooks, Tom Fett Road, Richland Township

	TREATMENT	HYBRID	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	Fall Plow	Pioneer 3780	24,000	21.6%	142.0	$318.12	$109.49
2.	Coulter-Chisel	Pioneer 3780	26,000	21.0%	140.3	319.84	114.11

1. Fall plowed- disced, field cultivated, planted.
2. Coulter-chisel disced, field cultivated, planted.

Planted May 24 with a seed drop of 26,000. Sprayed with 5 lbs. Aatrex with 60 gal. of water as carrier. Fertilizer included 200 lbs. of 8-32-17 plus trace minerals 200 lbs. of 0-23-30 broadcast in the fall and 200 lbs. of anhydrous ammonia applied after corn was up for a total of 180-110-94. 12.5 lbs. of Furadan banded at planting for insect control.

Don Davis, Boundary Road, Union Township, Auglaize County

	TREATMENT	HYBRID	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	Offset Disc	Hybrid Avg.	--	22.1%	78.2%	$173.84	$-29.16
2.	No-Till	Hybrid Avg.	--	20.9%	82.5%	187.50	+10.56

1. Fall offset disced, cultimulched twice, planted.
2. No-till planted with Allis Chalmers planter.

Planted May 25 with a seed drop of 24,600. Sprayed with .8 gal. Bicep, plus 1/2 pt. Banvel post emerge. No-till also received 2/3 qt. Paraquat. Fertilization included 150 lbs. 0-0-60 boradcast in the fall, 140 lbs. of 18-46-0 in the row. Disc plot also received 304 lbs. of urea for a total of 165-64-90. No-till received 500 lbs. of 28% for a total of 165-64-90. 8 lbs. Furadan banded at planting for insect control.

CORN PLOTS PLANTED IN CORN STALKS CONT'D.

Larry Creeger, Reppert Road, Jackson Township

	TREATMENT	HYBRID	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	No-Till	Sohigro 39	--	22.0%	90.0	$202.23	$ -12.68

Planted May 22 with the International planter without coulters at a seed drop of 27,100. Sprayed with 1 qt. Paraquat, 3 qt. Lasso and 2 lbs. of Aatrex 80W. Came back after corn was up with a post-emerge application of 2 lbs. of Bladex and 1 lb. of Aatrex. Fertilizer included 130 lbs. of 18-46-0, 133 lbs. of 0-0-60 broadcast and 98 lbs. of 18-46-0, 100 lbs. of 0-0-60 and 321 lbs. of 28% side dressed for a total of 131-106-140. 10 lbs. of Counter 15G was banded at planting for insect control.

Leonard Troyer, Dutch Hollow Road, Sugar Creek Township

	TREATMENT	HYBRID	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	Fall Plow	DeKalb 55A	21,400	23.3%	146.3	$322.25	$126.68
2.	Coulter-Chisel	DeKalb 55A	19,200	24.0	152.9	336.60	142.98

1. Fall plowed, field cultivated, planted.
2. Fall coulter-chiseled, field cultivated, planted.

Planted March 29 at a seed drop of 25,000. Sprayed with 1.2 qt. of Dual 8E and 1.2 qt. of Aatrex. Fertilizer included 200 lbs. of 0-0-60 broadcast in the fall, 150 lbs. of 10-34-0 in the row, and 244 lbs. of Anhydrous Ammonia for a total of 215-51-120.

Ken Early, State Road, Bath Township

	TREATMENT	HYBRID	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	No-Till	Funks 4323	22,800	25.5%	141.8	$305.84	$ 97.64

Planted May 27 with a 1" fluted coulter White planter at a seed drop of 28,600. Sprayed with 2 qt. Paraquat and .8 gal. Bladex 4L. Fertilizer included 112 lbs. 0-5-53 broadcast before planting, 217 lbs. 14-20-14 in the row and 520 lbs. of 28% for a total of 176-49-90. 6 lbs. Amaze banded at planting for insect control.

Wes Plikerd, Monfort Road, Amanda Township

	TREATMENT	HYBRID	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	No-Till	Bailey 333	24,500	28.0%	65.0	$135.41	$-62.71

Planted on June 8 with a John Deere 1" fluted coulter planter with a seed drop of 27,700. Sprayed with 1 qt. Paraquat plus spreading, 2.2 lbs. Aatrex 90 and 2.5 pt . Dual with 59 gal. of 28% as a carrier. Herbicide plots were also in this field. Fertilization included 145 lbs. 0-0-60 broadcast in the fall, 200 lbs. 8-25-3 in the row and 586 lbs. of 28% for a total of 180-50-93. 13 lbs. Furadan banded at planting for insect control.

CORN PLOTS PLANTED IN SOYBEAN STUBBLE

Herb Stewart, Lugabill Road, Richland Township

	TREATMENT	HYBRID	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	Fall Plow	Cargill 922	25,000	22.8%	107.3	$237.53	$ 16.13
2.	No-Till	Mixture	24,000	20.1%	157.0	357.14	106.86
3.	No-Till	Mixture	--	20.1%	140.5	319.73	49.45

1. Fall plowed in bean stubble, disced, field cultivated, planted.
2. No-till in bean stubble with John Deere 1" fluted coulter planter.
3. No-till in alfalfa sod with John Deere 1" fluted coulter planter.

Planted no-till plots on May 5 with a seed drop of 24,000. Hyrbids used in this plot were Cargill 921, Sohigro 68, Dekalb 25A and 55A. Plow plot was planted on June 5 with a seed drop of 22,000. Sprayed no-till alfalfa plot with .29 gal. of Paraquat with spreader, 1.92 lbs. Aatrex 80W, 3.8 lbs. Bladex 80W with 35 gal. of 28% as a carrier. Also sprayed as a post-emerge was .1 gal. 2-4D and .05 gal. Banvel. Sprayed no-till bean stubble plot with .14 gal. Paraquat with sprader, .27 gal. Dual and 27 lbs. Bladex with 48 gal. of 28% as a carrier. Sprayed plow plot with 2.5 lbs. Bladex 80W and 1.0 lbs. Aatrex 80W. Both no-till plots received 200 lbs. 21-00, 300 lbs. of 0-0-60 and 270 lbs. 18-46-0 broadcast in the fall; and 180 lbs. 7-28-28 in the row. No-till in alfalfa also received 350 lbs. of 28% for a total fertilization of 201-175-230. No-till soybean also received 480 lbs. of 28% for a total of 238-175-230. Fertilization for the plow plot was 300 lbs. of 18-40-0, 350 lbs. of 0-60 and 200 lbs. of 45-0-0 broadcast for a total of 144-138-210. 10 lbs. of Dylox was applied to the no-till in alfalfa sod for armyworm control.

Luke Lugibihl, Columbus Grove-Bluffton Road, Richland Township

	TREATMENT	HYBRID	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	No-Till	Pioneer 3780	--	21.5%	128.8	$291.46	$ 84.40

Planted on May 5 with a seed drop of 27,700. Sprayed with 1 qt. Paraquat, 2.5 lbs. Aatrex 80W and 2 qt. Lasso. Fertilization included 350 lbs. 3-10-30 broadcast, 120 lbs. 10-34-0 in the row and 643 lbs. of 28% for a total of 203-76-105. 1 pt. Furadan used for insect control.

CORN PLOTS PLANTED IN SOYBEAN STUBBLE CONT'D.

Calvin Kiracofe, Sugar Creek Road, Bath Township

	TREATMENT	HYBRID	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	No-Till	Robinson 3827	--	31.8%	133.0	$258.93	$ 53.92

Planted May 15 with an Allis Chalmers no-till planter at a seed drop of 24,000 sprayed with 1 qt. Paraquat, 2 lbs. Aatrex 80W and 2 qt. Lasso. Fertilization included 150 lbs. 0-0-60 broadcast, 150 lbs. 18-46-0 in the row, 214 lbs. of 28% and 152 lbs. of 82% for a total of 212-69-90. 10 lbs. Furadan banded at planting for insect control.

Joe Schmersal, Slabtown Road, Monroe Township

	TREATMENT	HYBRID	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	No-Till	Pioneer 3535	22,100	20.2%	124.2	$282.80	$ 24.21

Planted on May 8 with the International planter at a seed drop of 26,300. Sprayed 1 qt. Paraquat, .6 gal. Bladex, .35 gal. Dual 8E with .07 gal. Citowett with 21 gal.of 28% corn was 6-10" high sprayed with .45 gal. Aatrex with 1 gal. of oil. Fertilization included 200 lbs. of 21-0-0, 300 lbs. 0-0-60 broadcast in the fall, 200 lbs. of 8-32-16 in the row, 214 lbs. of 28% in the Spring and 218 lbs. of 28% in July for a total of 179-64-212. 13 lbs. of Furadan used for insect control.

Fred Troyer, Poling Road, American Township

	TREATMENT	HYBRID	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	Field Cult.	Super Crost 2350	19,300	33.8%	107.3	$201.10	$ 16.21
2.	No-Till	Super Crost 2350	17,700	34.5%	112.7	209.77	27.90

1. Spring field cultivated, planted.
2. No-till with a 1" fluted coulter John Deere planter.

Planted on May 8 at a seed drop of 26,000. Sprayed with 20 lbs. Aatrex 80W and 2.0 lbs. Princep 80W. Fertilization included 184 lbs. 18-46-0, 200 lbs. 0-0-60, and 218 lbs. of 28% for a total of 94-85-120. 13 lbs. of Furadan and 2 qts. Toxaphene used for insect control.

CORN PLOTS IN RYE COVER CROP

Jerry Wagner, Wapak Road, American Township

	TREATMENT	HYBRID	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	Fall Plow	Super Crost 2350	--	27.0%	107.5	$227.28	$ 46.56
2.	No-Till	Super Crost 2350	--	30.4%	115.0	229.99	34.94

1. Fall plowed, disced, planted
2. No-till with a rye cover crop planted with 1" fluted coulter John Deere planter

Planted no-till on May 23 with a seed drop of 26,100. Planted plow on May 21 with a seed drop of 24,000. Sprayed no-till with 1 qt. Paraquat, 1¼ qts. Dual 8E and 1.7 lbs. Princep 80W with 64 gal. of 28% as a carrier. Sprayed plow plot with 1.5 lbs. of Aatrex and 1.5 lbs. Princep 80W with 64 gal. of 28% as a carrier. Fertilization for no-till was 170 lbs. 9-23-31 in the row and 642 lbs. of 28% for a total of 195-39-53. Fertilization for the plow plot was 200 lbs. of 9-23-31 in the row and 642 lbs. of 28% for a total of 198-46-62. 2 lbs. of Sevin 80W was applied on the no-till for insect control.

Dave Ernest, Phillips Road, Jackson Township

	TREATMENT	HYBRID	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	Coulter-Chisel	Pioneer 3780	--	22.0%	110.5	$248.38	$ 42.86
2.	No-Till	Landmark 747	21,000	29.5%	91.3	185.81	-19.81

1. Fall coulter-chisel, disced three times, planted.
2. No-till planted with fluted coulter John Deere planter.

Planted on May 23 and 24 with a seed drop of 26,100. Sprayed no-till with 1 qt. Paraquat, 2 lbs. Princep 80W and 3 lbs. Bladex 80W with 40 gal. of water as a carrier. Sprayed chisel with 2 lbs. Bladex 80W and 2# Princep 80W with 20 gal. of water as a carrier. Fertilization for no-till included 200 lbs. 0-0-61 and 15 lbs. zinc broadcast in the Spring, 100 lbs. 10-34-0 in the row and 554 lbs. of 28% for a total of 165-34-122. Fertilization for coulter-chisel was 350 lbs. of 0-0-61, 15 lbs. zinc and 150 lbs. urea broadcast in the Spring and 110 lbs. of 82% for a total of 159-0-214. 10 lbs. counter banded at planting for insect control. 1½ qt. Toxaphene was used to control armyworms in no-till.

Tom Schumacher, Putnam Road, Richland Township

	TREATMENT	HYBRID	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	Spring Plow	Sohigro 57	24,200	20.8%	149.0	$342.13	$117.17
2.	No-Till	Sohigro 57	25,300	21.3%	150.7	336.42	118.35

1. Spring plowed, cultimulched three times, planted.
2. No-till with a rye cover crop planted with a 1" fluted coulter John Deere Planter.

Planted on April 25 with a seed drop of 27,700. Sprayed with 2 qt. Bladex 4L and 2.25 pts. Dual 8E. No-till also received 1 qt. Paraquat. Fertilization included 200 lbs. of 0-0-60 broadcast in the fall, 216 lbs. of 8-32-16 in the row, 183 lbs. of 82% and 200 lbs. of 28% for a total of 223-69-155. 1.25 lbs. Dylox sprayed on no-till for armyworm control.

CORN PLOTS IN RYE COVER CROP CONT'D.

Bob Ernest, Sugar Creek Road, Jackson Township

	TREATMENT	HYBRID	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	Fall Plow	Landmark 747	25,000	29.1%	91.8	$186.85	$ 12.76
2.	Coulter-Chisel	Landmark 747	24,000	29.7%	107.4	$216.08	37.52
3.	No-Till	Landmark 747	24,000	32.8%	80.3	153.42	-13.76

1. Fall plowed, field cultivated twice, planted.
2. Coulter-chiseled, disced twice, field cultivated, planted.
3. No-till planted with 1" fluted coulter John Deere planter.

Planted May 23 with a seed drop of 26,000. 1980 crop was wheat sown with a rye cover in no-till and in plow plot before plowing. Sprayed plow and chisel plot with 2 lbs. Aatrex 9-0 and 2 qt. Lasso. Sprayed no-till with 1 qt. Paraquat plus spreader, 1½ lbs. Princep 80W and 3 lbs. Bladex 80W with 20 gal. of 28% as a carrier. Fertilization included 300 lbs. of 21-0-0 and 200 lbs. of 0-0-60, 25 lbs. of zinc sulfate and 15 lbs. Borate, spread before planting. No-till also received 200 lbs. of 28% for a total of 119-0-120. Plow and chisel plots also received 85 lbs. of 82% for a total of 133-0-120.

Darrell Basinger, Putnam Road, Richland Township

	TREATMENT	HYBRID	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	No-Till	Sonigro 57	27,300	25.5%	120.0	$257.64	$ 64.82

Planted on April 25 with John Deere 1" fluted coulter planter at a seed drop of 27,700. 1980 crop was soybeans seeded to wheat in the fall. Sprayed with 1 qt. Paraquat, 2.25 ts. Dual, 2 qt. Bladex 4L, and 1½ lbs. Bladex 80W. Fertilization included 216 lbs. of 8-32-16 in the row and 220 lbs. of 82% for a total of 198-69-35. 1 lb. Dylox used for armyworm control.

CORN PLOTS PLANTED IN ALFALFA AND MISC.

Rodney Stratton, Phillips Road, Richland Township

	TREATMENT	HYBRID	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	No-till	Sohigro 57	26,500	28.2%	133.0	$274.65	$ 25.24

Planted on May 5 and May 8 with the 1" fluted coulter White planter at an average seed drop of 29,800. Sprayed with 1 qt. Paraquat with spreader, 1 qt. Princep 4L, 2 lbs. Aatrex 80W and 3 lbs. Bladex 80W with 65 gal. of 28% as a carrier. Also sprayed 1 pt. of 2-4-D as post-emerge. Fertilization included 100 lbs. of 18-46-0 and 250 lbs. of 0-0-60 broadcast in the fall, 150 lbs. 8-32-16 in the row, and 650 lbs. of 28% for a total of 212-94-174. Used 13 lbs. Furadan for insect control. Sprayed 1 qt. Sevin XLR for armyworm control.

Dick Shafer, Lincoln Highway, Monroe Township

	TREATMENT	HYBRID	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	Offset Disc	Robinson 3638	26,800	31.4%	99.1	$194.72	$-20.36
2.	No-Till	Robinson 3638	21,300	36.0%	70.1	126.96	-68.30

1. Fall offset disced, disced twice, field cultivated, planted.
2. No-till planted with 1" fluted coulter White planter.

Planted May 22 with a seed drop of 27,100. The no-till plot was sprayed with lqt. Paraquat and sprayed with 2.5 lbs. of Aatrex, 2.5 lbs. of Princep 80W. Fertilizer for no-till included 33 lbs. of 18-46-0, 95 lbs. of 0-0-60, 238 lbs. of 21-0-0, 550 lbs. of 28% and 150 lbs. of 15-30-15 in the row for a total of 232-60-79. Disc plot was sprayed with 4 lbs. of Aatrex and 2 pts. Dual. fertilizer included 32 lbs of 18-46-0 161 lbs. of 0-0-60, 214 lbs. of 28%, 122 lbs. of 82%, and 150 lbs. of 15-30-15 in the row for a total of 188-60-119. No-till was sprayed with 4 pt. Toxaphene for armyworm control.

Meadowbrook Farms, Hanthorn Road, Perry Township

	TREATMENT	HYBRID	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	No-till	Northrup King 39		26.0%	113.9	$243.10	$ 35.27

Planted May 26 with the International planter without fluted coulters at a seed drop of 22,000. Sprayed with 1 qt. Paraquat and .8 gal. Bicep with 43 gal. 28% Nitrogen as a carrier. Fertilizer included 300 lbs. 0-0-60 broadcast in the fall, 100 lbs. 18-46-0 broadcast ahead of planting, 430 lbs. of 28% and 61 lbs. of anhydrous ammonia applied after the corn was up. For a total of 188-46-180. No insecticide applied.

Vance Weaver, Sugar Creek Road, Bath Township

	TREATMENT	HYBRID	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	No-till	Pioneer 3780 - Sohigro 557	--	20.6%	81.2	$184.45	$ -13.89

Planted no-till on May 8 with the 1" fluted coulter White planter at a seed drop of 25,800. Sprayed with 1 qt. Paraquat with spreader, 1/2 pt. 2-4-D Amine, 1/2 pt. Banvel, 2½ lbs. Aatrex 80W and 2½ lbs. Princep 80W with 50 gal. of 28% as a carrier. Fertilization included 200 lbs. 6-24-24 in the row and 500 lbs. of 28% for a total of 152-48-48. 18 lbs. of Furadan banded at planting for insect control. 2 qt. Toxaphene used for armyworm control.

CORN PLOTS PLANTED IN ALFALFA AND MISC. CONT'D.

Vernon Neff, Wapak Road, Shawnee Township

	TREATMENT	HYBRID	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	Fall Plow	Bayless 637	22,200	25.2%	159.4	$342.19	$134.12
2.	Offset Disc	Bayless 637	22,200	26.1%	161.8	342.07	123.32
3.	Coulter-Chisel	Bayless 637	22,500	26.7%	157.9	331.90	113.42

1. Fall plowed, field cultivated, planted.
2. Fall offset disced, field cultivated three times, planted.
3. Fall coulter-chiseled, field cultivated three times, planted.

Planted May 23 in 36 inch rows with a seed drop of 23,300. Prior cover was alfalfa-orchard grass sod. Sprayed with 3 lbs. Atrazine, 1½ pt. Dual and ½ pt. Banvel with 20 gal. of water as a carrier. Fertilization included 200 lbs. 0-0-60 broadcast, 171 lbs. of 82% and 170 lbs. of 18-46-0 in the row for a total of 171-78-120. 10 lbs. of Furadan was banded at planting for insect control.

Kenny Miller, Zion Church Road, Amanda Township

	TREATMENT	HYBRID	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	Fall Plow	Migro 2018	--	19.7%	119.4	$273.40	$ 51.10
2.	Offset Disc	Migro 2018	--	20.5%	110.7	250.54	31.65
3.	Coulter-Chisel	Migro 2018	--	21.8%	107.1	240.51	21.68
4.	No-Till	Migro HP 470 & 360	--	22.5%	73.7	165.23	-68.01

1. Fall plowed, field cultivated twice, planted, cultivated.
2. Fall offset disced, field cultivated twice, planted cultivated.
3. Fall coulter-chiseled, field cultivated twice, planted, cultivated.
4. No-till planter with John Deere coulter planter.

Planted no-till on May 25 with a seed drop of 26,000. 1980 crop was oats with sweet clover. Planted, plow, disc and chisel plots on June 5 at a seed drop of 26,000. 1980 crop was corn. Sprayed no-till with 2.2 pts. Paraquat plus spreader, .8 pt. 2-4-D Amine, 1.4 lbs. Princep 80W and 3.25 lbs. Bladex 80W with 72 gal. of 28% as a carrier. Sprayed, plow, disc and chisel plots with 1/2 pt. Banvel and 2 qt. Aatrex with 20 gal. of water as a carrier. Fertilization for no-till included 400 lbs. 4-10-40 broadcast ahead of planting, 165 lbs. of 10-34-0 in the row and 724 lbs. of 28% for a total of 236-96-160. Fertilization for all other plots was 375 lbs. 4-10-40 broadcast in fall, 165 lbs. of 10-34-0 in the row and 207 lbs. of 82% for a total of 202-94-150. 10 lbs. of Counter banded at planting for insect control.

Jim Pohlman, Bloomlock Road, Marion Township

	TREATMENT	HYBRID	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	No-till	Pioneer 3780	25,000	18.9%	87.6	$202.70	$ 1.08

Planted June 4 with the John Deere 1" fluted coulter planter at a seed drop of 26,000. Prior crop was clover hay. Sprayed with 1 qt. Paraquat plus spreader, 1¼ lbs. Princep, 1¼ lbs. Atrazine and 3/10 gal. Bladex 4L with 50 gal. of 28% as a carrier. Fertilization included 350 lbs. of 9-23-30 in the row and 500 lbs. of 28% for a total of 172-81-105. 10 lbs. Furadan banded at planting insect control. 2 qts. Lannate L for cutworm control.

ECONOMIC COMPARISON GUIDELINES

The costs of production were compared for each no-till plot as well as each tillage comparison plot. Participants reported the quantities of materials used such as fertilizer, herbicides, and insecticides, and listed the number and type of machine operations performed on the field. Tables 7. and 8. list the unit prices and custom machine rate charges used to determine production costs. Corn value was determined by dividing wet weights per acre by 56 pounds per dry bushel and multiplying by $2.40/bushel less 2.5% price discount for each half point of moisture over 15.5%. (Local elevator schedule) Soybeans were valued at a straight $6.00/bushel. Net return was then calculated as the difference between crop value and production costs. Prices used for materials were local elevator prices in season and rates for custom machine work was adopted from the 1981 Farm Custom Rates Bulletin published by the Cooperative Extension Service. A set charge of $40.00/Acre for corn, $30.00/acre for soybeans, and $25.00/acre for double-crop soybeans was used to include the cost of seed, lime, interest, and other incidental costs. No land charge was included in the calculations.

TABLE 7. MACHINE CUSTOM RATES

Operation	Implement	Custom Rate	Fuel Used (Gal/Acre)	Time Spent (Minute/Ac)
Primary Tillage	Plow	$11.25/Acre	1.85	19
	Offset Disc	8.50	1.15	15
	Chisel Plow	8.50	1.15	15
Secondary Tillage	Tandem Disc	6.00	.65	8
	Field Cultivator	6.50	.65	8
	Harrow	5.50	.45	6
	Cultimulcher	5.00	.45	6
Planting	No-till	11.25	.75	15
	(Double-Planted)	16.50	1.50	30
	Conventional	8.25	.65	10
	(Double-Planted)	12.00	1.30	20
Rotary Hoeing		2.75	.30	6
Cultivate Row Crops		5.00	.45	11
Apply Anhydrous Ammonia		6.50		
Spray Liquids		3.50		
Spread Dry Fertilizer		3.50		
Aerial Applications		4.00		
Harvest Corn		20.25		
Harvest Soybeans		19.00		
Truck Grain (300 bu loads, 10 miles)		.09/bu.		

TABLE 8. UNIT PRICES OF MATERIALS

Fertilizer

Nitrogen Solution (28%)	26.0¢/lb. actual N
Anhydrous Ammonia (82%)	16.0¢/lb. actual N
Urea (46%)	26.9¢/lb. actual N
Ammonium Sulfate (21%)	35.5¢/lb. actual N
Ammonium Nitrate (33%)	30.0¢/lb. actual N
0-44-0	25.3¢/lb. actual P
0-0-60	12.9¢/lb. actual K
18-46-0	$278.27/Ton
Zinc Sulfate	$600.00/Ton
Borate	$770.00/Ton

Herbicides

Amiben Granules	$ .95/lb.	Lorox	$ 5.76/lb.
Amiben Liquid	14.70/gal.	Lexone D.F.	15.60/lb.
Atrazine 80W	2.27/lb.	Hoelon	50.81/gal.
Atrazine 4L	12.03/gal.	Paraquat	43.13/gal.
Atrazine 9-0	2.68/lb.	Princep 80W	3.70/lb.
Banvel	41.27/gal.	Princep 4L	19.04/gal.
Basagran	77.52/gal.	Prowl	32.85/gal.
Bicep	19.75/gal.	Roundup	70.46/gal.
Bladex 80W	2.99/lb.	Sencor 50W	10.30/lb.
Bladex 4L	15.86/lb.	Sencor D.F.	15.60/lb.
Bladex Granules	.76/lb.	Sencor 4L	83.06/gal.
Blazer	76.55/gal.	Surflan W.P.	6.95/lb.
Crop Oil	7.50/gal.	Treflan	35.40/gal.
Dual 8E	44.32/gal.	X-77 Surfactant	13.26/gal.
Lasso Granules	.70/lb.	2,4-D Amine	11.22/gal.
Lasso	17.90/gal.		

Insecticides

Amaze	$ 1.65/lb.	Isotox	$ 8.75/lb.
Counter 15G	1.23/lb.	Lorsban	1.26/lb.
Dyfonate 20G	1.34/lb.	Sevin 80W	2.77/lb.
Dylox 80W	4.60/lb.	Sevin XLR	16.60/gal.
Furadan 10G	.90/lb.	Toxaphene	9.33/gal.
Furadan 4L	39.03/gal.		

TABLE 9. 1981 CORN TILLAGE COMPARISON PRODUCTION COSTS SUMMARY *

Farm	No-till				Plow					Disc				
	Herbicides	Fertilizer	Other	TOTAL	Herbicides	Fertilizer	Tillage	Other	TOTAL	Herbicides	Fertilizer	Tillage	Other	TOTAL
N. Althaus	40	57	90	188	26	57	32	83	198					
D. Bassett	42	75	99	216						22	70	21	93	206
L. Bassett	24	69	98	190						19	80	21	90	209
S. Blythe					19	79	31	91	220					
Bluffton Vo-Ag	31	86	92	209	20	81	30	89	220	20	81	30	89	217
Bluffton Vo-Ag					20	81	30	90	221					
R. Bowsher					16	86	30	80	211					
J. Brooks					15	78	24	93	209					
N. Brown	23	82	92	198	23	90	23	93	229	23	90	21	93	226
D. Davis	33	79	87	198						25	76	19	83	203
D. Ernest	31	74	101	206										
B. Ernest	29	54	84	167	18	54	24	78	174					
B. Etzkorn	39	132	98	269	16	111	20	94	241					
R. Fischer	28	107	101	237						17	107	15	92	231
E. Foulkes	26	120	93	239	15	120	18	81	234					
I. Grone	20	67	83	171	20	67	11	83	181	20	67	9	81	177
Hutchinson Bro					16	108	34	93	251					
K. Miller	32	110	91	233	12	89	29	92	222	12	89	27	91	219
V. Neff					21	75	18	94	208	21	75	28	94	219
C. Plikerd	33	104	98	235	18	86	24	93	221					
H. Pohlman	29	126	97	252	14	116	29	96	255					
T. Schumaker	36	90	92	218	25	90	26	83	225					
D. Shafer	31	80	84	195						24	80	32	80	215
H. Stewart	30	135	85	250	13	104	24	78	219					
D. Suter	28	65	97	189										
L. Troyer					20	74	18	83	196					
L. Vandemark	37	86	103	226	15	102	34	93	245					
J. Wagner	34	71	89	195	12	71	17	80	181					
K. Winegardner	31	109	97	237	19	109	17	96	242	19	109	15	96	239
K. Winegardner					19	109	17	95	241					
Averages	31	90	93	214	18	89	24	88	219	19	84	22	89	215

*In Dollars

TABLE 9. Cont. 1981 CORN TILLAGE COMPARISON PRODUCTION COSTS SUMMARY *

Chisel					No-till		Plow		Disc		Chisel	
Herbicides	Fertilizer	Tillage	Other	TOTALS	Value/Re	Net turns	Value/Re	Net turns	Value/Re	Net turns	Value/Re	Net turns
					278	91	320	122				
22	70	21	92	204	162	-54			310	104	276	71
19	80	21	89	209	176	-14			233	14	215	6
19	79	28	92	219			270	49			299	80
20	81	30	88	217	194	-15	186	-34	178	-38	196	-21
							224	3				
16	86	33	79	213			265	54			258	44
15	78	21	92	206			318	109			320	114
					200	3	247	18	241	16		
					188	11			174	-29		
17	71	27	92	206	186	-20					248	43
17	54	27	80	179	153	-14	187	13			216	38
					206	-62	347	106				
					163	-73			255	23		
					285	46	268	34				
20	67	15	84	187	163	- 8	203	22	191	14	233	46
16	108	32	93	248			253	1			257	8
12	89	27	91	219	165	-68	273	51	251	32	241	22
21	75	28	94	218			342	134	342	123	332	113
18	89	21	94	223	210	-24	316	95			355	133
					269	17	332	77				
					336	118	342	117				
					127	-68			195	-20		
					357	107	236	16				
22	57	18	91	187	200	11					231	44
20	74	15	84	194			332	127			337	143
					243	17	295	50				
					230	35	227	47				
					282	45	309	68	315	76		
							311	69				
18	77	24	89	209	217	4	278	59	243	29	268	59

* In Dollars

TABLE 10. FOUR YEAR COMPARISON OF RETURNS BY TILLAGE SYSTEMS

(CORN)

YEAR	LANDOWNER	NO-TILL	FALL PLOW	SPRING PLOW	OFFSET DISC	DISC-CHISEL
1978	Bassett	$---/Ac.	$ 43	$ --	$ 32	$ 26
	Begg	-90	-75	-87	-56	--
	Fricke	-33	-36	--	--	--
	Kiracofe	117	--	--	78	--
	Mayer	28	--	28	3	--
	Pohlman	45	16	--	--	--
	Rumbaugh	52	--	--	48	--
	Whetstone	57	--	--	94	--
	Winegardner	11	27	15	--	--
	1978 Average	23	-5	-15	33	26
1979	Mayer	$-64	$-82	$ --	$ 34	$ --
	Begg	83	--	28	30	--
	Kiracofe	51	--	--	--	108
	Rumbaugh	147	--	147	--	--
	Winegardner	42	--	13	--	--
	Davis	87	--	--	87	--
	K. Miller	124	--	40	--	--
	1979 Average	$ 67	$-82	$ 57	$ 50	$108
1980	Begg Plot A	$184	$ --	$ 58	$ 60	$ --
	Begg Plot B	93	--	150	--	--
	K. Miller Plot A	244	--	185	--	--
	K. Miller Plot B	173	206	--	--	--
	Brooks	166	169	--	--	--
	Lugibihl	311	--	--	211	--
	J. Miller	244	--	177	--	--
	Biery	166	--	208	--	--
	Vandemark	249	254	--	--	--
	Clum	157	--	134	--	--
	Suter	134	--	--	--	169
	Ernest	213	--	242	--	--
	Davis	125	--	--	6	--
	Hager Plot A	43	--	--	--	98
	Hager Plot B	43	--	226	--	160
	Winegardner	114	--	160	--	--
	1980 Average	$166	$210	$171	$ 92	$142

TABLE 10. CONT. FOUR YEAR COMPARISON OF RETURNS BY TILLAGE SYSTEM

(CORN)

Year	Landowner	NO-TILL	FALL PLOW	SPRING PLOW	OFFSET DISC	DISC-CHISEL
1981	Bluffton Vo-Ag	$-15	$-34	$ 3	$-38	$-21
	I. Grone	- 8	22	--	14	46
	K. Miller	-68	51	--	31	22
	K. Winegardner	45	68	69	76	--
	B. Ernest	-14	13	--	--	38
	C. Plikerd	-24	95	--	--	133
	N. Brown	- 8	--	18	16	--
	D. Bassett	-57	--	--	104	71
	L. Bassett	-14	--	--	14	6
	B. Etzkorn	-62	108	--	--	--
	H. Pohlman	17	77	--	--	--
	H. Stewart	107	16	--	--	--
	L. Vandemark	17	50	--	--	--
	J. Wagner	35	47	--	--	--
	N. Althaus	91	--	122	--	--
	E. Foulkes	46	--	34	--	--
	T. Shumacher	118	--	117	--	--
	D. Davis	11	--	--	-29	--
	R. Fischer	-73	--	--	23	--
	D. Shafer	-68	--	--	-20	--
	D. Ernest	-20	--	--	--	43
	D. Suter	11	--	--	--	44
	V. Neff	--	134	--	123	113
	S. Blythe	--	49	--	--	80
	R. Bowsher	--	52	--	--	44
	J. Brooks	--	109	--	--	114
	H. Hutchinson	--	1	--	--	8
	L. Troyer	--	127	--	--	143
	1981 Average	$ 3	$ 58	$ 61	$ 29	$ 59
	4 Year Average	$65	$ 45	$ 70	$ 51	$ 84
	Number of Observations	16/53	12/26	8/21	10/23	10/20
	Ranked First	30%	46%	38%	43%	50%

TABLE 11. TIME & FUEL FOR TILLAGE SUMMARY

Corn

	No-till		Plow		Disc		Chisel	
	Time (Min.)	Fuel (Gal.)	Time (Min.)	Fuel (Gal.)	Time (Min.)	Fuel (Gal.)	Time (Min.)	Fuel (Gal.)
N. Althaus	15	.8	51	4.3				
D. Bassett	15	.8			41	3.1	41	3.1
L. Bassett	15	.8			41	3.1	41	3.1
S. Blythe			53	4.5			49	3.8
Bluffton Vo-Ag	15	.8	53	4.5	49	3.8	49	3.8
R. Bowsher			57	4.7			53	4.0
J. Brooks			45	3.8			41	3.1
N. Brown	15	.8	45	3.8			41	3.1
D. Davis	15	.8			37	2.7		
D. Ernest	15	.8					49	3.8
B. Ernest	15	.8	45	3.8			49	3.8
B. Etzkorn	15	.8	33	2.8				
R. Fischer	15	.8			33	2.5		
E. Foulkes	15	.8	37	3.2				
I. Grone	15	.8	29	2.5	25	1.3	33	2.5
Hutchinson Bro,			59	4.9			55	4.2
K. Miller	15	.8	45	3.8	41	3.1	41	3.1
V. Neff			37	3.2	49	3.8	49	3.8
C. Plikerd	15	.8	37	3.2			41	3.1
H. Pohlman	15	.8	45	3.8				
T. Schumacker	15	.8	47	3.9				
D. Shafer	15	.8			49	3.8		
H. Stewart	15	.8	45	3.8				
D. Suter	15	.8					33	2.5
L. Troyer			37	3.2			33	2.5
L. Vandemark	15	.8	45	3.8				
J. Wagner	15	.8	37	3.2				
K. Winegardner	15	.8	37	3.2	33	2.5		
Averages	15	.8	44	3.9	40	3.0	44	3.3
Average Cost of Time and Fuel for Tillage and Planting	$2.71		$9.81		$8.27		$9.09	
Percent of No-till's Cost	100%		360%		305%		335%	

Assume Fuel costs $1.20/gallon and skilled labor is $7.00/hour.

ECONOMIC DATA OBSERVATIONS

Dollar figures were calculated on all areas of farm operation and summarized in this section. One thing to remember is that custom rate charges were used on all farm operations that the farmers reported. The net returns and other dollar values are used only for comparison purposes within this booklet and do not represent actual cost's incurred or profit's received on the farm listed. Below are the observations we have made.

Corn

1. The no-till economic results of 1981 were the poorest of all years tested.
2. The average return for each treatment tested varied little when viewed over the four year period. The four year average return for each systems was, fall plow $45, disc $51, no-till $65, spring plow $70 and disc chisel $84. (Table 10)
3. When comparing times high versus times tested, there was no substantial difference in the success rate for any of the tillage treatments.
4. The effect of wide variations in crop prices and growing seasons can be seen in the wide variation of the yearly returns.
5. In Table 9. shows costs summary of herbicides, fertilizer, tillage and miscellaneous expenses for each farm. The average on the bottom of the chart shows that this years fertilizer and other costs were very similar among plots. The differences were in a $13 increase in herbicides for no-till only and a $23 increase in tillage operation cost for the plow, disc, and chisel plots.
6. The cost of fuel and labor (Table 11.) should be considered when comparing the overall dollar benefits of each treatment. The tillage plots result from the $27 increase in uses of the tillage tools plus approximately $6 more for time and fuel.

TILLAGE COMPARISON YIELD SUMMARY

The next several pages are devoted to comparing yields of all the corn plots for the past four years. Yield under different residue cover are also analyzed.

TABLE 12. FOUR YEAR TILLAGE COMPARISON YIELD SUMMARIES

YEAR	LANDOWNER	NO-TILL	FALL PLOW	SPRING PLOW	OFFSET DISC	(CORN) DISC CHISEL
1978	Bassett		135		132	129
	Begg	27	43	33	50	
	Fricke	62	82			
	Kiracofe	145			132	
	Mayer	112		115	98	
	Pohlman	117	95			
	Rumbaugh	107			107	
	Whetstone	128			138	
	Winegardner	108	112	108		
	1978 Average	103	94	85	109.5	129
1979	Mayer	107.5	112.4		114.7	
	Begg	132.4		111.6	114.1	
	Kiracofe	113.2				130.6
	Rumbaugh	137.8		141.7		
	Winegardner	131.0		123.5		
	Davis	120.2			120.5	
	K. Miller	145.6		109.4		
	1979 Average	126.8	112.4	121.5	116.4	130.6
1980	Begg Plot A	132.8		107.9	109.8	
	Begg Plot B	90.7		117.9		
	K. Miller Plot A	136.7		133.3		
	K. Miller Plot B	121.9	135.6			
	Brooks	135.0	142.8			
	Lugibihl	166.1			143.1	
	J. Miller	130.0		126.0		
	Biery	101.9		124.6		
	Vandemark	159.6	164.0			
	Clum	115.5		108.9		
	Suter	115.5				127.0
	Ernest	138.4		152.1		
	Davis	117.0			94.2	
	Hager Plot A	68.9				94.9
	Hager Plot B	65.7		130.5		119.0
	Winegardner	107.6		144.1		
	Whetstone	133.0			140.6	
	1980 Average	119.8	147.8	127.3	121.9	113.6

TABLE 12. CONT. FOUR YEAR TILLAGE COMPARISON YIELD SUMMARIES

(CORN)

YEAR	LANDOWNER	NO-TILL	FALL PLOW	SPRING PLOW	OFFSET DISC	DISC-CHISEL
1981	Bluffton Vo-Ag	95.1	102.2	106.7	90.5	96.2
	I. Grone	95.2	117.1		107.9	131.1
	K. Miller	73.7	119.4		110.7	107.1
	K. Winegardner	133.0	147.2	146.4	149.9	
	B. Ernest	80.3	91.8			107.4
	C. Plikerd	105.4	132.5			154.5
	N. Brown	91.4		114.1	112.4	
	D. Bassett	82.7			145.1	134.1
	L. Bassett	89.3			115.3	112.6
	B. Etzkorn	103.9	158.7			
	H. Pohlman	128.6	151.1			
	H. Stewart	157.0	107.3			
	L. Vandemark	117.7	133.0			
	J. Wagner	115.0	107.6			
	N. Althaus	134.9		146.7		
	E. Foulkes	132.7		123.6		
	T. Schumacher	150.7		149.0		
	D. Davis	82.5			78.2	
	R. Fischer	91.6			130.6	
	D. Shafer	70.1			99.1	
	D. Ernest	91.3				110.5
	D. Suter	96.0				104.0
	V. Neff		159.4		161.8	157.9
	S. Blythe		125.3			138.5
	R. Bowsher		116.5			113.4
	G. Brooks		142.0			140.3
	H. Hutchinson		120.2			118.6
	L. Troyer		146.3			152.9
	1981 Average	105.3	128.1	128.0	118.3	125.3
	4 Year Average	113.7	120.6	115.5	116.5	124.6
	Number of Observations	17/54	13/26	10/22	8/24	10/20
	Ranked First	(31%)	(50%)	(45%)	(33%)	(50%)

1981 NO-TILL CORN PLOTS
WITHOUT COMPARISONS

FARM	YIELD	NET RETURN	FARM	YIELD	NET RETURN
D. Basinger	120.0	$64.82	W. Plikerd	65.0	$-62.71
B. Begg	134.4	65.73	J. Pohlman	87.6	1.08
R. Bowdle	101.4	-26.44	J. Schmersal	124.2	24.21
G. Brooks	161.2	64.36	D. Spallinger	87.0	-26.54
L. Creeger	90.0	-12.68	R. Stratton	133.0	25.24
K. Early	141.8	97.64	H. Stewart	140.5	49.45
G. Herron	124.1	103.50	F. Troyer	112.7	27.90
C. Kiracofe #1	135.9	76.23	L. Turner	108.9	33.86
C. Kiracofe #2	133.0	53.92	J. VanMeter	90.0	19.21
L. Lugibihl	128.8	84.40	V. Weaver	81.2	-13.89
Meadowbrook Farms	113.9	35.27	K. Winegardner	88.1	-53.07
			Average No-Till w/o Comparison	114.5	$ 28.70
			Average All No-Till Plots	109.5	$ 15.33

TABLE 13. FOUR YEAR AVERAGE NO-TILL YIELDS BY COVER

Year	Corn Yields - Bu/Ac Stalks	Wheat Stubble	Bean Stubble	Rye	Hay	No-till Weighted Average	County * Average
1978	105 (5)	116 (4)	--	141 (1)	--	113	100.1
1979	119 (9)	147 (1)	--	144 (1)	--	124	124.7
1980	109 (9)	122 (5)	127 (4)	149 (1)	132 (5)	126	123.5
1981	101 (7)	105 (19)	128 (5)	120 (6)	100 (5)	108	--
4 Year Average	109	123	128	139	116	123	
4 Year Weighted Average	109 (30)	111 (29)	128 (9)	128 (9)	116 (10)	119 (87)	

Note: Numbers in parenthesis are number of tests.
* Ohio Crop Reporting Service Figures.

TABLE 14. FOUR YEAR CORN EMERGENCE DATA

Year	No-Till			Conventional		
	Average Seed Drop	Average Population	Average Emergence	Average Seed Drop	Average Population	Average Emergence
1978	24,100	20,800	86%	22,800	20,300	89%
1979	24,200	20,800	86%	23,400	21,100	90%
1980						
Tillage Tests	26,500	23,500	89%	26,800	23,900	85%
Hybrid Tests	26,400	22,000	86%	24,600	21,900	89%
1981						
Compar. Tests	26,520	22,780	86%	25,540	22,120	87%
County Hybrid Tests				24,230	21,020	87%
4 Year Average	25,540	21,980	86%	24,560	21,720	88%

TABLE 15. NO-TILL CORN EMERGENCE BY RESIDUE

Year	Cornstalks	Wheat/Oat Stubble	Bean Stubble	Growing Rye/Alfalfa
1978	85%	85%	--	89%
1979	87	82	--	92
1980	88	86	88	86
1981	80	81	86	91
Average	85%	84%	87%	90%

TILLAGE COMPARISON OBSERVATIONS

The results of the 1981 Corn Tillage Plots were disappointing mainly due to the exceptionally wet year we experienced. Plowed plots generally yielded better than the no-till plots while mulch-till plots were basically in the middle, yield wise. Specific observations made are below.

Four Year Average

1. Over four years of testing, the variations between plots are very slight (See Table 12.).
2. The four year average is heavily favored toward 1981 results since many more plots were tested in 1981.
3. When considering these summaries, the more times a plot is tested the more reliable the results is. For example 54 tests in no-till vs. 20 tests in coulter-chisel plots.
4. Four 1978-1980 average no-till yields are comparable to the county yield that are reported by the Ohio Crop Reporting Service (See Table 13.)

Residue Cover

1. Table 13 shows long term trends according to residue. Some of the residues have been tested more than other and should be kept in mind when evaluating this table.
2. Residues have a significant effect on yields. Stalk residue have been consistently lowest in yields where as wheat/oats stubble or cover crop have been equal to or better than the county average. Bean stubble has most consistently produced very favorable. Rye figures should not be weighed heavily due to only one test in 1978, 1979, and 1980.
3. Due to wet weather in 1981, fields with higher residue levels (sod, wheat stubble) generally had lower yields.
4. Table 13 indicated no-till will perform better in a rotation than with continuous corn. It also indicated farmers can successfully no-till corn in bean stubble. These two observations agree with the Ohio State University Research findings.

Seed Drop and Emergences

1. Tables 14 and 15 are based on reported drops and several hundred actual stand counts over a four year period. Actual drops will vary from farm to farm but over this many counts we feel highs and lows average out.
2. Four year data (Table 14) consistently shows a slight decrease in emergence, 500-1000 plants. Our recommendations is a high levels (24-27,000 drop) no increase is needed but at lower levels (20-22,000 drops) a slight increase of 5% in justified. Field conditions during planting should be the determining factor in whether or not an increase in seed drop is needed.

3. Bean stubble and sod have been consistently higher in emergence (See Table 15.). We feel this is due to the more rapid rate of drying of the soil surface.

Standability

1. Standability among the tillage plots showed us that no-till will stand better than plowed plots. The late harvest this year made this observation easily recognizable in several fields.

Moisture

1. Table 18. indicates moisture differences by various tillage systems. In general, plow plots dried down slightly quicker than the no-till or mulch-till treatments. In 1980, which was a good year for drydown, no drydown advantage was seen in the plow plots. The no-till plots in 1981, in contrast, were considerably wetter at harvest.

PROBLEMS IN 1981 NO-TILL CORN

In 1981 no-till showed the poorest results in the comparison plots. Table 16. identifies those plots which resulted in a yield reduction and lists factors which we thought possibly reduced yields. Weed control and stand are rated whether limiting or not (yes or no). Nitrogen amounts are given for the no-till and next higher yielding comparison. Use of nitrogen is shown by dividing the bushels produced by pounds of nitrogen applied (N utilization factor).

OBSERVATIONS

1. 17 of a total of 22 comparisons (77%) saw the no-till yield reduced 8 or more bushels below a tilled comparison.

2. Of the 17 plots 13 had 28% on the no-till plot and anhydrous on the comparison. In 10 of these 13, weeds or stand was not limiting.

3. Three of the 17 plots had 20 or more pounds less nitrogen on the no-till as compared to the comparison.

4. Five of the 17 plots could have been limited mainly by weeds or stand. The remaining 12 were limited by something else.

5. In the 17 plots nitrogen conversion rate for the no-till averaged .58 bu/lb. N as compared to .71 bu/lb. N for the comparison. Possible causes could be denitrification, poor root development, poor pollination, delayed emergence, or other unknown factors.

6. On all no-till plots with anhydrous (8 plots) the conversion rate averaged .60 bu/lb. N. This was not significantly different than the average for the 17 no-till plots with 28% nitrogen where the yield was reduced (average of .58 bu./lb.).

7. The average converison rate for all no-till plots regardless of nitrogen source was .56 bu./lb. N. This was not significantly different from the no-till plots were yield was reduced below the tilled comparison.

8. We conclude that something other than stand, weeds, hybrid potential, or source of nitrogen limited most no-till yields this year. We suspect it is related to the interaction of drainage, and amount of residue cover but have no data to prove this. Erratic weather conditions in 1981 also made it very difficult to show consistent results in comparable situations.

TABLE 16. POSSIBLE CAUSES OF NO-TILL CORN REDUCTION

Name	Yield Reduc.*	Weeds	Stand	Nitrogen Applied: No-Till In lbs. of N 28%	82%	Total	Comparison In lbs. of N 28%	82%	Total	N UTILIZATION FACTOR: Bu. Produced/ N Applied No-Till	Compar.
B. Ernest	12	No	No	56		119		70	133	.67	.80
K. Miller	46	Yes	Yes	203		236		170	202	.31	.59
C. Plikerd	27	No	No	200		214	40	160	214	.49	.62
N. Brown	23	Yes	No	150		166	150		170	.55	.67
D. Bassett	52	No	Partially	112		154		115	157	.53	.85
L. Bassett	24	No	No	84		115		164	195	.77	.57
B. Etzkorn	55	No	No	241		285		220	264	.36	.60
H. Pohlman	23	No	No	180		240		200	260	.54	.58
N. Althaus	12	No	No	105		162	50	56	163	.83	.90
R. Fischer	39	No	Partially	59	164	267	59	164	267	.49	.55
D. Shafer	29	No	Partially	154		232	60	100	188	.30	.53
D. Ernest	19	No	No	155		165		90	159	.55	.69
K. Winegardner	13	No	No	125		200	125		200	.67	.74
I. Grone	22	No	Yes	62		96	62		96	.99	1.22
Bluf. Vo-Ag	12	No	No	119		137		119	137	.69	.77
L. Vandemark	15	No	No	206		224	168	108	294	.53	.45
D. Suter	8	No	Yes	175		175		121	121	.55	.86
Average	25					187			189	.58	.71

* In Bushels

NOTES

1981 ALLEN COUNTY NO-TILL CORN HYBRID TEST GUIDELINES

GENERAL CONDITIONS

This hybrid trial program was developed to help Allen County farmers evaluate the performance of selected corn hybrids when used in a no-till farming operation.

The hybrid trials consisted of 3 groups of 4 test hybrids plus the county tester.

Each participant furnished 150 pounds of a 110 to 115 day hybrid obtained from the same lot of seed. Seed sizes were recommended by company to fit IHC, Cl-X or JD B-1 plate. Normally this was medium rounds.

Sponsors collected seed, divided it into equal lots, marked with code identification; and delivered to producers.

GUIDELINES

Procedures were followed to insure that variety was the only variable. Both agency personnel and farmers made observations and kept records throughout the growing season. Responsibility of each was as follows:

FARMER:

1. Provided 150 lbs. of a 110-115 day test hybrid.
2. Planted each test hybrid in adjacent strips using normal no-till practices.
3. Planted test hybrids on soils similar in fertility, drainage and productivity.
4. Harvested and weighed each test hybrid with help of sponsors.
5. Kept reliable records on rainfall, planting dates, fertilizer and pesticides used.

AGENCY PERSONNEL:

1. Assisted during planting in changing hybrids, emptying planter boxes and marking plots with stakes.
2. Measured field area, population at emergence, barren stalks, and final harvest population.
3. Determined amount of surface residue retained and estimated annual soil erosion losses.
4. Provided a weigh wagon, moisture tester, and scale operator to assist at harvest.
5. Calculated and published yields, expenses, and profitability of the various systems. (See Tillage Comparison and Economic Section)

MISCELLANEOUS ITEMS

1. All test hybrids were planted in same residue within each test.
2. Total N, P, K was the same for all hybrids within each test.
3. Residual, contact herbicide, and soil insecticide was the same within each test.
4. Post-emergent or "clean up" herbicides were used as necessary to control weeds.
5. Each hybrid was harvested for grain with minimum of one pass across the field.

1981 NO TILL CORN HYBRID YIELD DATA

Group F

	Population	Moisture	Yield	$Value
Bill Begg, 7055 Lugibill Rd., Bluffton				
1. Cargill 921	19,690	31.8	156.0	303.71
2. Bayless 637	22,129	31.4	154.2	300.58
3. Pioneer 3529	11,326	30.0	132.2	266.79
4. Rupp 1780	12,894	36.3	108.8	193.52
5. Landmark 747	13,939	36.1	120.8	214.30
Harold Pohlman, Route #3, Delphos				
1. Cargill 921	19,000	35.0	114.2	210.52
2. Bayless 637	24,000	36.2	112.8	218.13
3. Pioneer 3529	18,000	32.9	109.6	209.71
4. Rupp 1780	19,000	36.0	124.0	223.75
5. Landmark 747	20,000	37.4	131.2	228.63
Gerald Brooks, 9777 Tom Fett Rd., Bluffton				
1. Cargill 921	23,000	26.9	168.2	354.87
2. Bayless 637	22,700	24.8	155.1	335.85
3. Pioneer 3529	21,800	28.0	167.8	349.58
4. Rupp 1780	20,400	34.5	148.7	276.78
5. Landmark 747	24,800	29.6	155.0	311.30

Group G

Gerald Brooks, 9777 Tom Fett Rd., Bluffton				
1. PAG 397	23,700	26.1	168.4	356.05
2. Migro 2018X	16,400	34.5	163.2	303.77
3. Gutwein 2610	22,100	25.3	155.3	333.79
4. Rupp 1780	19,500	33.3	153.5	290.35
5. NK 69A	21,300	29.1	177.2	358.62
Harold Pohlman, Route #3, Delphos				
1. PAG 397	24,000	30.2	120.6	240.66
2. Migro 2018X	17,000	28.4	126.0	260.09
3. Gutwein 2610	21,000	30.6	119.7	236.39
4. Rupp 1780	18,000	36.0	124.0	223.77
5. NK 69A	19,000	31.3	119.3	234.30
Don Davis, 18773 Boundry Rd., Wapkaoneta				
1. PAG 397		20.6	78.8	179.12
2. Migro 2018X		18.9	81.9	190.39
3. Gutwein 2610		20.8	82.6	187.61
4. Rupp 1780		32.3	84.4	186.16
5. NK 69A		21.0	85.0	194.23

Group H

Charles Plikerd, Zion Church Rd., Elida				
1. Super Crost 2790		29.7	92.0	184.99
2. NK PX 39		28.5	98.9	204.58
3. Trojan 1058		32.4	103.4	199.59
4. Rupp 1780		37.8	103.5	177.85
5. Bailey 333		30.8	117.8	233.16

CULTURAL PRACTICES

Group F

Begg — Planted on May 28 in 30 inch rows at a seed drop of 27,100. 1980 crop was wheat. Sprayed with 1 qt. Paraquat plus spreader, 1 1/2 lbs. Princep, 1 1/2 lbs. Aatrex and 1 lb. Bladex with 20 gal. of 28% as a carrier. Fertilization included 180 lbs. of 16-41-54 in the row, 220 lbs. of 82-0-0 and 196 lbs. of 28-0-0 for a total of 251-41-54. No insecticide applied.

Pohlman — Planted May 21 in 30 inch rows with a seed drop of 24,000. 1980 crop was wheat. Sprayed with 1 qt. paraquat with spreader, 3 lbs. Bladex and 1 1/2 lb. Princep with 64 gal. of 28-0-0 as a carrier. Fertilization included 100 lbs. of 21-0-0, 100 lbs. of 0-46-0 and 200 lbs. of 0-0-62 Broadcast in the Fall, 300 lbs. of 13-34-14 in the row plus 640 lbs. of 28% for a total of 239 -148-166. 13 lbs. of Furadan Banded at planting was used for insect control. 1.0 lbs. toxaphene sprayed for armyworm control.

Brooks — Planted May 27 in 30 inch rows with a seed drop of 26,000. 1980 crop was soybeans with two bushel of rye per acre flown on Sept. 26. Sprayed with 1 qt. Paraquat, 2 1/2 pt. Dual 8 E and 3 lbs. of Bladex 80W with 60 gal. of 28-0-0 as a carrier. Fertilization included 100 lbs. 0-44-0 and 200 lbs. 0-0-60 Broadcast in the Fall; 200 lbs. 8-32-17 in the row; 100 lbs. 82-0-0 sidedressed and 600 lbs. of 28-0-0 for a total of 266-108-154. 1 oz. isotox seed box treatment was used for insect control.

Group G

Brooks — Same as Cultural Practice F

Pohlman — Same as Cultural Practice F

Davis — Planted May 25 in 30 inch rows at a seed drop of 24,600. 1980 crop was corn. Sprayed with 2/3 qt. Paraquat and .8 gal. Bicep with 50 gal. of 28-0-0 as a carrier; plus 1/2 pt. Banvel post emergence. Fertilization included 140 lbs. 18-46-0 in the row, 150 lbs. of 0-0-60 Broadcast and 500 lbs. of 28-0-0 for a total of 165-64-90. 8 lbs. of Furadan Banded at planting for insect control.

Group H

Plikerd — Planted on May 22 in 30 inch rows at a seed drop of 26,000. 1980 crop was wheat. Sprayed with 1 qt. Paraquat, 3 lbs. Princep, 2 lbs. Aatrex and 1/2 pt. Banvel with 71 gal. of 28-0-0 as a carrier. Fertilization included 100 lbs. 0-46-0 and 200 lbs. 0-0-60 Broadcast in the Fall, 170 lbs. of 8-32-16 in the row and 714 lbs. of 28-0-0 for a total of 214-100-147. 13 lbs. of Furadan Banded at planting was used for insect control. 1/2 lb. Dylox sprayed on corn for armyworm control.

TABLE 17. FOUR YEAR NO-TILL HYBRID AVERAGE YIELDS

	1981		1980		1979		1978	
HYBRID	MOISTURE	YIELD	MOISTURE	YIELD	MOISTURE	YIELD	MOISTURE	YIELD
Cargill 921	30.0	140.4	25.0	134.2	24.8	140.7		
Bayless 637	30.9	135.8						
Pioneer 3529	30.3	130.0					25.3	95.1
Rupp 1780	35.8	121.0						
Landmark 747	34.4	129.4						
PAG 397	25.6	121.3						
Migro 2018X	27.3	123.2	21.3	125.2				
Gutwein 2610	25.6	119.0						
Northrup King 69A	27.1	126.0						
Super Crost 2790	29.7	107.6						
Northrup King PX 39	28.5	115.7						
Trojan 1058	32.5	121.0						
Bailey 333	30.8	137.8						
Voris 2532			26.0	145.4	27.2	131.6		
Sohigro 57			24.8	140.9				
Trojan 115			25.7	137.6	27.1	130.2		
Walton 40			26.3	133.7				
Rupp 1625			21.3	130.7	21.9	116.3		
Pioneer 3541			23.5	131.9				
Pioneer 3780			20.3	125.4	19.8	117.6		
DeKalb 72aa			25.6	126.8	26.8	124.9	27.7	104.9
Northrup King PX 69			24.0	124.1				
Funks G4323					21.3	114.4		
Robinson 3225					25.6	119.4		
Northrup King 74					27.4	122.5		
Northrup King 49					21.2	111.5		
PAG 424					24.1	107.5		
ACCO 4201					25.9	108.7		
Bayless 447							25.9	93.4
Funks 4321							22.2	95.7
Trojan 108							22.7	89.8
Jacques JX 180							28.0	90.9
Robinson 3827							27.8	100.6
U.S.S. Seeds 1010							28.9	94.4
YEARLY AVERAGE	30.0	125.2	24.2	132.5	24.5	120.4	26.1	96.2

TABLE 18. FOUR YEAR COMPARISON OF CORN HARVEST MOISTURE

YEAR		% MOISTURE NO-TILL	PLOW	DISC	CHISEL
1978	Average Moisture	24.2	23.7	26.9	31.2
	Number of Observations / Number Times Wettest	6 / 4	4 / 0	6 / 3	1 / 1
1979	Average Moisture	24.8	23.1	32.5	24.3
	Number of Observations / Number Times Wettest	7 / 6	5 / 0	3 / 1	1 / 0
1980	Average Moisture	17.7	19.2	17.9	17.4
	Number of Observations / Number Times Wettest	14 / 6	12 / 6	2 / 1	2 / 0
1981	(Soybean Stubble) Average Moisture	27.3	22.8	--	33.8
	Number of Observations / Number Times Wettest	2 / 1	1 / 1	--	1 / 0
	(Wheat Stubble) Average Moisture	28.4	24.2	28.4	25.1
	Number of Observations / Number Times Wettest	11 / 6	10 / 3	6 / 2	7 / 2
	(Corn Stalks) Average Moisture	28.8	26.9	28.8	25.1
	Number of Observations / Number Times Wettest	5 / 3	5 / 2	3 / 2	6 / 1
	(Rye/Sod) Average Moisture	30.1	25.5	28.8	28.2
	Number of Observations / Number Times Wettest	4 / 4	4 / 0	2 / 0	2 / 1
	(Average of All) Average Moisture	28.7	24.9	28.6	28.1
	Number of Observations / Number Times Wettest	22 / 14	20 / 10	11 / 6	16 / 4
4 Year Average	Average Moisture	24.5	23.0	27.7	25.3
	Number of Observations / Number Times Wettest	49 / 30	41 / 12	22 / 11	20 / 5

TABLE 19. ADJUSTED 1981 NO-TILL CORN HYBRID DATA

HYBRID	POPULATION	% MOISTURE	YIELD BU/AC.	VALUE
Cargill 921	20,600	30.0%	140.4	$289.70
Bayless 637	22,900	30.9%	135.8	284.85
Pioneer 3529	17,000	30.3%	130.0	275.36
Rupp 1780	18,100	35.8%	121.0	214.21
Landmark 747	19,600	34.4%	129.4	251.41
PAG 397	23,900	25.6%	121.3	258.61
Migro 2018X	16,700	27.3%	123.2	251.42
Gutwein 2610	21,600	25.6%	119.0	252.26
Northrup King 69A	20,200	27.1%	126.0	262.38
Super Crost 2790	--	29.7%	107.6	184.99
Northrup King PX39	--	28.5%	115.7	204.58
Trojan 1058	--	32.4%	121.0	199.59
Bailey	--	30.8%	137.8	233.16
AVERAGE	20,100	29.9%	125.2	$243.27

NO-TILL HYBRID TEST OBSERVATIONS

Hybrid plots planted no-till were conducted on several farms throughout the county. The wet weather adversely affected several of the plots by either not having the time to put the plot in during planting or being drowned out after it had been planted. The limited number of valid plots harvested does not make our information as reliable as we would like. Below are some of our observations of the plots.

1. Table 17. shows yields of four years of no-till hybrid tests. Tests were replicated and yields adjusted to the common tester for each year. Testers varied from year to year and yields are not adjusted according to years.
2. Table 19. shows 1981 results adjusted to the 1981 tester.
3. Table 17. is of limited value because producers keep changing ybrids in the test. Also different testers were supplied in different years.
4. In four years of field observations we have not been able to establish that some hybrids are better for no-till or determine any particular traits which are or are not important.
5. Table 18. shows responses of identical hybrids under different tillage systems. No-till grows slower and matures slightly later as seen in the data. For this reason it is important to pick a hybrid with good drydown characteristics.

NO-TILL CORN HERBICIDE TEST PLOTS

Herbicide comparison plots were established on three farms in 1981. The plots involved evaluations of contact herbicides, and pre- and post-emergent herbicides in both corn and soybeans.

The largest comparison was carried out on the Ralph Fischer Farm and involved fifteen plots in both conventional and no-tillage corn. The plots were planted on May 8 and sprayed on May 20. One-half of the plot was no-till corn in wheat stubble. The other half of the plot was also wheat stubble, but was offset disced in the fall and worked clean in the spring. The no-till plot had extremely heavy growth of volunteer wheat and had received some manure. Residual chemicals were applied using a pull-type sprayer equipped with flat fan nozzles spaced 20" apart. Twenty gallons of water per acre was applied and spraying pressure was 30 psi. Each residual treatment was replicated twice. One-half of all the no-till plots was treated separately with Paraquat and the other half with Round-up. Stand counts showed a plant population of 22,000 in the conventional plot and 21,000 in the no-till plot. These plots were carried out with the assistance of the Delphos Equity Elevator.

Corn herbicide plots were also established on the Wes Plikerd Farm. Three different treatments were used with each treatment being ten acres in size. The prior crop on this farm was corn and the plot location and treatments were specifically selected because of heavy fall panicum pressure. Spraying was done courtesy of the Farm Service Center, Spencerville. The material was applied with a floater, with approximately 50 gallons of 28% nitrogen solution as the carrier.

CORN HERBICIDE PLOT OBSERVATIONS

Ralph Fischer Farm

1. There was no significant difference in the overall control between the conventional and no-till plots.
2. Pigweed was the only weed not consistently controlled. Pigweed was not controlled in the plots with Bladex.
3. Grass control was good or better over all plots with all combinations.
4. Lasso and Dual performed as well as the triazines on grasses even though they were applied to growing cover. Perhaps this was due to low grass pressure.
5. Three-way combinations provided slightly better results than two-way combinations.
6. There was a wide range of costs for combinations which provided little difference in control.

Wes Plikerd Farm

1. Broadleaf control was acceptable in all plots. Grass control was acceptable in one plot, unacceptable in 2 plots. Fall panicum was the grass most often not controlled.
2. Dual alone or Dual-Bladex at the low rate was not sufficient to control fall panicum. However good control was obtained when a slightly higher rate of Bladex was used.
3. The cost of the additional Bladex for fall panicum control was $3.07 per acre.

TABLE 20. 1981 CORN HERBICIDE COMPARISONS

Ralph Fischer Farm

Plot	Rate/Chemical	Cost	Grass Control			Broadleaf Control		
			No-till Paraquat	No-till Roundup	Conv.	No-till Paraquat	No-till Roundup	Conv.
A	1.6 lb Atrazine 9-0 3.1 lb Bladex 80W	4.29 9.27 $13.56	Exc	Good	Good+	Good+	Exc	Good+
B	0.5 lb Sencor 50W 1.6 lb Atrazine 9-0 2.5 qt Lasso	5.15 4.29 11.20 $20.64	Exc	Exc	Good+	Good+	Exc	Good+
C	0.5 lb Sencor 50W 3.1 lb Bladex 80W 2.5 pt Dual 8E	5.15 9.27 13.85 $28.27	Exc	Good	Good+	Fair+	Good	Good
D	1.5 lb Atrazine 80W 1.5 lb Princep 80W 2.5 pt Dual 8E	3.41 5.55 13.85 $22.81	Exc	Good	Good+	Good+	Exc	Good+
E	3.1 lb Bladex 80W 1.5 lb Princep 80W	9.33 5.55 $14.88	Good+	Good	Exc	Fair+	Exc	Good+
F	1.0 gal Bicep	$19.75	Exc	Exc	Exc	Good	Exc	Good+
G	2.5 lb Atrazine 80W 2.5 qt Lasso	5.68 11.20 $16.88	Good+	Exc	Exc	Good+	Good	Good+
H	1.5 lb Atrazine 80W 1.5 lb Princep 80W	3.41 5.55 $8.96	Good+	Exc	Good+	Good+	Good	Exc
I	2.5 lb Atrazine 80W 3.0 qt Lasso	5.68 13.44 $19.12	Good+	Exc	Exc	Good+	Good	Exc
J	1.5 lb Atrazine 80W 1.5 lb Princep 80W 2.5 qt Lasso	3.41 5.55 11.20 $20.16	Exc	Exc	Exc	Good	Good	Exc
K	2.5 lb Atrazine 80W 2.5 pt Dual 8E	5.68 13.85 $19.53	Exc	Exc	Exc	Good+	Exc	Good+

TABLE 20. CONT. 1981 CORN HERBICIDE COMPARISONS

Plot	Rate/Chemical	Cost	Grass Control			Broadleaf Control		
			No-till Paraquat	No-till Roundup	Conv.	No-till Paraquat	No-till Roundup	Conv.
L	1.9 lb Atrazine 80W	4.31	Exc	Exc	Good+	Exc	Exc	Good+
	3.1 lb Bladex 80W	9.27						
	2.5 pt Dual 8E	13.85						
		$27.43						
M	3.0 lb Atrazine 80W	6.81	Exc	Exc	Exc	Good+	Good	Good
	2.5 qt Lasso	11.20						
		$18.01						
N	5.0 lb Bladex 80W	14.95	Exc	Exc	Good+	Fair	Fair	Fair
	3.0 qt Lasso	13.44						
		$28.39						
O	3.7 lb Bladex 80W	11.21	Exc	Exc	Exc	Poor	Poor	Good
	2.5 qt Lasso	11.20						
	0.5 lb Sencor 50W	5.15						
		$27.56						

(+) denotes 1 replication rated 1 step higher

TABLE 21. 1981 NO-TILL CORN HERBICIDE PLOT

Wes Plikard Farm

Plot	Rate	Chemical	Cost	Weeds Controlled		Weeds Not Controlled
				Grasses	Broadleafs	
1	3.0 lb	Bladex 80W	8.97	Good	Good	--
	2.5 pt	Dual 8E	13.85			
			$22.82			
2	1.3 lb	Atrazine 9-0	3.48	Fair	Good	Fall Panicum
	1.5 lb	Bladex 80W	4.49			
	2.5 pt	Dual 8E	13.85			
			$21.82			
3	2.2 lb	Atrazine 9-0	5.90	Fair	Good	Fall Panicum
	2.5 lb	Dual 8E	13.85			
			$19.75			

CONSERVATION TILLAGE SOYBEAN PLOTS

GENERAL CONDITIONS

The Soybean Field Trial Program is very similar to the corn program. Tillage field trials are encourage between two or more of the following tillage practices. Coulter-chisel plowing, offset discing, spring plowing, fall plowing and no-till.

GUIDELINES

Procedures were followed to insure that tillage was the only variable. Both agency personnel and farmers made observations and kept records throughout the growing season. Responsibilities of each are listed in the corn plot section.

SOYBEAN PLOTS PLANTED IN CORN STALKS

Dave Hefner, Ada Road, Bath Township

	TREATMENT	VARIETY	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	Offset Disc	Thompson 350	162,800	15.0%	45.5	$273.00	$169.89
2.	No-Till	Northrup King	236,800	14.3%	40.5	243.00	133.99

1. Fall offset disced, field cultivated twice, planted.
2. No-till planted with the 8" Tye Drill.

Planted no-till June 14 in 8 inch rows at a seed drop of 236,800 (80 lbs.). Disc plot planted on June 6 in 30 inch rows at a seed drop of 162,800 (55 lbs.). Sprayed no-till with 3 pts. Paraquat with spreader, 3 qt. Lasso and .75 lbs. Lexone DF Disc plot received 2 qt. Lasso and 1/2 lb. Lexone DF. No fertilization or insecticide applied.

Bill Begg, Rockport Road, Richland Township

	TREATMENT	VARIETY	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	No-Till	Asgrow 3127	--	14.2%	32.0	$192.00	$ 94.53

Planted on May 26 with the M&W Drill in 8 inch rows with a seed drop of 157,500 (63 lbs.). This field was treated to several different herbicide treatments to determine their effectiveness. See the herbicide treatment section for exact rates. No fertilization or insecticide was applied.

George Knebel, Mericle Road, Marion Township

	TREATMENT	VARIETY	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	Plow	Vickery	157,000	12.6%	40.1	$240.60	$136.94
2.	No-Till	Vickery	178,900	13.7%	42.1	252.60	130.47

1. Fall plowed, field cultimulched and harrowed twice, planted, cultivated twice.
2. No-till planted with M&W drill, (light disc to cut stalks before planting).

Planted no-till on June 5 in 8" rows at a seed drop of 178,900 (63 lbs.). Plow plot planted on June 5 in 30 inch rows at a seed drop of 159,000 (56 lbs.). Sprayed no-till with 1 qt. Paraquat, .55 lbs. Lexone and 1.4 qt. Dual plus 1 qt. Blazer when corn was up. Plow plot received 9 lbs. of Amiben banded in the row. No fertilization or insecticide applied.

Wes Plikerd, Monfort Road, Amanda Township

	TREATMENT	VARIETY	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	No-Till	Agrisoy 45 & 46 & Bailey	--	12.7%	31.0	$186.00	$ 84.53

Planted on June 23 and 24 in 30 inch and 15 inch rows with a John Deere planter at a seed drop of 161,000 (66 lbs.). Sprayed with 1 qt. Paraquat, 2.5 pts. Dual 8E and 1 lb. Sencor 50W. No fertilizer or insecticide applied.

SOYBEAN PLOTS PLANTED IN CORN STALKS CONT'D.

Ron DeLong, Wapakoneta Road, Duchouquet Township, Auglaize Co.

	TREATMENT	VARIETY	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	Offset Disc	Agripro 26	225,000	15.8%	37.2	$223.20	$ 92.96
2.	No-Till	Agripro 26	225,000	16.1%	36.1	216.60	72.98

1. Fall offset disced, field cultivated twice, planted, rotary-hoed twice.
2. No-till planted with a Kinze fluted coulter planter.

Planted June 20 in 15 inch rows with an expected population of 225,000 (78 lbs.). Sprayed both plots with 2.5 qt. Lasso and 1/3 lbs. Lexone DF. No-till also received 1 qt. Paraquat with spreader and 1 qt. Basagram with 3 pts. of oil. Fertilization was 300 lbs. of Potash broadcast in the fall. No insecticide was applied.

Hutchinson Bros., Sugar Creek Road, Jackson Township

	TREATMENT	VARIETY	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	Fall Plow	Williams 79	125,000	14.1%	37.2%	$225.60	$101.02
2.	Coulter-Chisel	Williams 79	125,000	14.0%	40.0%	242.40	120.31

1. Fall plowed, field cultivated, disced, cultimulched, harrowed, planted.
2. Fall coulter-chiseled, field cultivated, disced, cultimulched, harrowed, planted.

Planted May 25 in 7 inch rows at a seed drop of 125,000. Sprayed with 6 qt. Amiben. No Fertilizer was applied. 1 qt. Sevin used for insect control in late August.

Vernon Burkholder, (MSV Farms), Mayberry Road, Monroe Township

	TREATMENT	VARIETY	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	Offset Disc	Pfizer CX380	101,000	15.5%	35.5	$213.00	$ 98.21
2.	Coulter-Chisel	Pfizer CX380	85,900	16.6%	30.8	184.80	70.44
3.	Plow	Pfizer CX380	72,000	16.0%	33.2%	199.20	81.87

1. Fall offset disced, disced twice, planted.
2. Fall soil savered, disced twice, planted.
3. Fall plowed, disced twice, planted.

Planted on May 21 in 30 inch rows at a seed drop of 116,700. Applied 9.4 lbs. Lasso banded, plus an average of 1/3 gal. Hoelon for grass and volunteer corn control. Fertilization included 108 lbs. of 5-18-6 in the row for a total of 5-19-6. No insecticide applied.

Bill Reese, Bussert Road, Sugar Creek Township

	TREATMENT	VARIETY	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	No-Till	Agripro 26	--	12.2%	41.0	$246.00	$123.65

Planted on June 4 and 5 in 30 inch rows with an Allis Chalmers planter and 8 inch rows with M&W drill at a seed drop of 160,000. Sprayed with 1 qt. Paraquat, 3/4 lb. Sencor and 2.5 pts. Dual with 20 gal of water as a carrier. Applied 3 pts. Hoelon post emerge for volunteer corn. No fertilizer or insecticide applied.

SOYBEAN PLOTS PLANTED IN CORN STALKS CONT'D.

Ross Clum, Hardin County Line Road, Jackson Township

	TREATMENT	VARIETY	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	Offset Disc	Wayne & Callahan	181,900	14.8%	44.1	$264.60	$164.66
2.	No-Till	Wayne & Callahan	181,900	15.6%	35.7	214.20	95.61

1. Fall offset disced, disced twice, planted in 8" rows.
2. No-till planted with 8" Tye drill.

Planted June 8 with the Tye Drill in 8 inch rows at an seed drop of 181,900 (75 lbs./ac.) Sprayed no-till with 1 qt. Paraquat, 4 qt. Lasso, 2 lbs. Lorox with 20 gal. of water plus 2 qt. Blazer with 30 gal. water. Disc plot received 2 qts. Lasso and 1 lb. Lorox with 15 gal. of water. No fertilizer or insecticide applied

Richard Bowdle, Crabb Road, Perry Township

	TREATMENT	VARIETY	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	No-Till	Mixture	--	23.0%	30.6	$183.60	$ 92.53

Planted June 5 with the Tye Drill in 7 inch rows with a seed drop of 160,000. Sprayed with 1 pt. of Paraquat plus spreader, 3/4 lb. Sencor, and 1 qt. Dual. No fertilization or insecticide applied.

Bluffton Vo-Ag, Hancock County Line Road, Richland Township

	TREATMENT	VARIETY	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	Fall Plow	Pfizer CX215	116,200	15.6%	15.2	91.20	$-15.88
2.	Offset Disc	Pfizer CX215	102,212	15.6%	32.1	192.60	86.75
3.	Coulter-Chisel	Pfizer CX215	132,411	15.6%	27.7	166.20	60.75
4.	No-Till	Pfizer CX215	137,057	15.9%	29.9	179.40	87.27

1. Fall plowed, field cultivated, disced, field cultivated, planted.
2. Fall offset disced, field cultivated, disced, field cultivated, planted.
3. Fall coulter-chisel, field cultivated, disced, field cultivated, planted.
4. No-till planted with the White 15" planter with 1" fluted coulters.

Planted on June 29 in 15 inch rows with seed drop of 198,000. No-till was sprayed with 1 qt. Paraquat, 2 qts. Lasso and 1 lb. Lorex. The other treatments was sprayed with 2 qts. Lasso and 1 lb. Lorex. No fertilizer applied. Weed control was good.

Dave Kihm, Grismore Road, Richland Township

	TREATMENT	VARIETY	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	No-Till	Asgrow 3127	225,000	13.4%	49.1	$294.60	$178.85

Planted May 7 in 8 inch rows with the Tye Drill at a seed drop of 187,500 (75 lbs.). Sprayed with 1 qt. Round-up, 1/2 lbs. Sencor and 2 pts. Dual. No fertilization or insecticide applied. Large quantities of hog manure has been hauled on this field.

SOYBEAN PLOTS PLANTED IN CORN STALKS CONT'D.

Spencerville Vo-Ag, Defiance Trail, Amanda Township

	TREATMENT	VARIETY	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	Fall Plow	Amsoy 71	150,000	12.5%	41.2	$247.20	$128.25
2.	Spring Plow	Amsoy 71	150,000	12.1%	38.7	232.20	113.58
3.	Offset Disc	Amsoy 71	150,000	12.5%	31.5	189.00	73.77
4.	Coulter-Chisel	Amsoy 71	150,000	13.1%	36.2	217.20	101.55
5.	No-Till	Amsoy 71	150,000	13.4%	36.2	217.20	117.37

1. Fall plow, disc, harrow, plant, cultivate twice.
2. Spring plow, disc, harrow, plant, cultivate twice.
3. Offset Disc, disc, harrow, plant, cultivate twice.
4. Coulter-chisel, disc, harrow, plant, cultivate twice.

Planted on June 5 in 30 inch rows with a seed drop of 150,000. Sprayed with 1 qt. Dual and 1 pt. Sencor. No-till also received 1 qt. Paraquat plus spreader. No fertilizer was applied.

Dave Ernest, Napoleon Road, Jackson Township

	TREATMENT	VARIETY	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	Spring Plow	NK - 1492	--	12.9%	34.8%	$208.80	$ 96.91
2.	Spring Plow	NK - 1492	--	13.4%	35.8%	214.80	99.07
3.	Coulter-Chisel	NK - 1492	--	14.5%	35.6%	213.60	104.39
4.	No-Till	NK - 1492	--	14.0%	38.0%	228.00	128.22

1. Spring plowed, disced, field cultivated, planted, rotary-hoed.
2. Spring plowed, disced, field cultivated, planted (double-backed), rotary-hoed.
3. Fall coulter-chiseled, disced, field cultivated, planted, rotary-hoed.
4. No-till planted with John Deere 1" fluted coulter planter (doubled back)

Planted all plots on June 7 in either 15 inch rows or 30 inch rows with no-till having a seed drop of 245,700 (90 lbs.) and other plots 163,800 (60 lbs.). Sprayed all plots with 2 qts. Lasso and 1 lb. Sencor with no-till also receiving 1.5 pt. Paraquat. No fertilization or insecticide applied.

Apollo Vo-Ag, Shawnee Road, Shawnee Township

	TREATMENT	VARIETY	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	Fall Plow	Callahan 7302R	72,000	13.1%	41.2	$247.20	$ 87.15
2.	Offset Disc	Callahan 7302R	93,000	13.5%	38.8	232.80	75.68
3.	Soil Saver	Callahan 7302R	77,000	13.7%	39.3	235.80	78.64
4.	No-Till	Callahan 7302R	121,000	15.4%	41.9	251.40	104.05

1. Fall plowed, disced twice, plant.
2. Fall offset disc, disced twice, plant.
3. Fall soil saver, disced twice plant.
4. No-till planted with the White 1" fluted coulter planter.

Planted June 8 in 15 inch rows, doubled back with 30 inch planter, at a seed drop of 160,000. Sprayed all treatments with 3 qt. Lasso and 1 pt. Sencor 4W. No-till treatment also received 1 qt. Paraquat plus spreader. Fertilization was broadcast in fall with anticipation of planting corn in Spring. Fertilizer included 174 lbs. 0-46-0 and 263 lbs. 0-0-62 for a total of 0-30-163. No insecticide applied.

SOYBEAN PLOTS PLANTED IN CORN STALKS CONT'D.

Lewis Bassett, Thayer Road, Bath Township

	TREATMENT	VARIETY	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	Offset Disc	Thompson 350	--	15.5%	37.2	$223.20	$104.97
2.	Coulter-Chisel	Thompson 350	--	16.2%	39.4	236.40	117.97

1. Fall offset disced, disced, field cultivated twice, planted, rotary-hoed, cultivated.
2. Fall coulter-chiseled, disced, field cultivated twice, planted, rotary-hoed, cultivated.

Planted on June 20 in 30" rows with a seed drop of 144,000 (60 lbs.). Sprayed with 2 pts. Dual and 1/2 lbs. of Sencor DF. No fertilizer or insecticide applied.

Bob Spallinger, Lincoln Highway, Richland Township

	TREATMENT	VARIETY	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	Fall Plow	Williams	228,600	13.0%	26.0	$156.00	$ 17.11
2.	Coulter-Chisel	Williams	228,600	13.0%	26.0	156.00	29.02

1. Fall plowed, disced, field cultivated, cultimulched, planted.
2. Fall coulter-chiseled, disced twice, field cultivated, cultimulched, planted.

Planted June 6 in 7 inch rows at a seed drop of 228,600 (90 lbs.). Sprayed chisel plot with 2.5 qt. Lasso and .75 lbs. Lexone. Sprayed plow plot with 2 pt. Basagram and 2 2/3 at Hoelon. Fertilization was 200 lbs. of 0-0-60 broadcast in the fall for a total of 0-0-120. No insecticide applied.

SOYBEAN PLOTS PLANTED IN WHEAT STUBBLE

Jay Begg, Begg Road, Monroe Township

	TREATMENT	VARIETY	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	No-Till	Agripro 27	--	13.5%	37.1	$222.60	$125.75

Planted May 22 with the M&W drill at a seed drop of 161,700. Sprayed with 1 qt. Paraquat .75 lbs. of Sencor 50W, and .75 lbs. Lasso. Crop was also sprayed by airplane with Toxaphene for bean leaf beetle.

Milo Rumbaugh, Hanthorn Road, Perry Township

	TREATMENT	VARIETY	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	No-Till 15"	Northrup King S40-44	--	20.1%	26.3	$157.80	$ 35.80
2.	No-Till 8"	Northrup King S40-44	--	17.3%	33.4	200.40	77.76

Planted June 5 in White 15" planter and Tye 8" drill rows. Sprayed with 3 pt. Roundup, 1lb. Lexone and 2.5 pt. Dual. No fertilizer applied.

SOYBEAN PLOTS PLANTED IN SOYBEAN STUBBLE

Kenny Miller, Conant Road, Amanda Township

	TREATMENT	VARIETY	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	No-Till	Migro 2530	--	13.8%	41.1%	$246.60	$122.37
2.	No-Till	Migro 2530	--	13.8%	38.9%	233.40	104.12
3.	No-Till w/oil	Migro 2530	--	13.8%	36.2%	217.20	72.23
4.	No-Till w/o oil	Migro 2530	--	13.8%	31.7%	190.20	47.44

1. No-till planted in 30 inch rows with the White planter.
2. No-till planted in 15 inch rows with a 30 inch planter doubled back.
3. No-till drilled in 8 inch rows with the Tye Drill with Hoelon and oil used for volunteer corn.
4. No-till drilled in 8 inch rows with Hoelon only used for volunteer corn.

Planted on June 6 in 30 inch row at a seed drop of 49 lbs., 15 inch rows was 68 lbs. and 8 inch rows was 54 lbs. Sprayed all plots with 1½ pts. Round-up plus Surfactant, 2 qt. Lasso and 1 lb. Sencor. No-till w/oil plot also received 3 pt. Hoelon with 1 qt. oil, and no-till w/oil received 3 pt. Hoelon. Entire plot sprayed with 1 qt. Blazer post-emerge. No fertilizer or insecticide applied.

Rodney Stratton, Phillips Road, Richland Township

	TREATMENT	VARIETY	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	No-Till	Williams	182,880	13.6%	52.0	$312.00	$196.76

Planted May 23 in 8 inch rows with the Tye Drill at a seed drop of 182,880. Sprayed with 1.2 qt. of Paraquat, 1.2 pts. of Sencor 4L, 2.4 pts. of Dual 8E and 1.2 qt. of X-77 spreader. No fertilizer applied. Insect control included 1 qt. Sevin XLR.

Luke Lugibihl, Columbus Grove-Bluffton Road, Richland Township

	TREATMENT	VARIETY	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	Offset Disc	Williams	--	13.7%	40.9	$245.40	$130.05
2.	No-Till	Williams	--	15.5%	38.3	229.00	126.68

1. Fall offset disced, field cultivated, planted with 7" drill.
2. No-till planted with 8" M&W drill.

Planted disc on May 26 and no-till on June 1 with a seed drop of 160,000 (63 lbs.). Sprayed both plots with 1 qt. Paraquat, .75 lb. Lexone DF and 3 qt. Lasso. No fertilization on insecticide applied.

SOYBEAN PLOTS PLANTED IN CORN STALKS WITH A RYE COVER CROP

Fred Arnold, Napoleon Road, Richland Township

	TREATMENT	VARIETY	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	No-Till	Variety Plots	--	13.0%	37.0	$222.00	$122.50

Planted June 8 in 15 inch rows with the White 15" planter with a seed drop of 161,000. Sprayed with 1 qt. of Paraquat, 2.5 pts. Dual and .75 pts. of Sencor for weed control. No fertilizer applied.

Bill Begg, Lugabill Road, Richland Township

	TREATMENT	VARIETY	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	No-Till	Agripro 3127	--	14.8%	26.4	$158.40	$ 38.88

Planted on June 18 in 15 inch rows with the White 15" planter at a seed drop of 187,500 (75 lbs.). Sprayed with 1 qt. Paraquat and spreader, 1 pt. Sencor 4L and 1.5 qt. Dual 8E. No fertilizer or insecticide applied.

Gerald Brooks, Tom Fett Road, Richland Township

	TREATMENT	VARIETY	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	No-Till	Amsoy & NK 1474	--	13.1%	42.5	$255.00	$149.21

Planted May 23 in 8 inch rows with the Tye Drill at a seed drop of 183,000. Cover crop was wheat. Applied 1 pt. Paraquat, 2.5 pts. Dual, and 3/4 lb. Sencor with 60 gal. of water as a carrier. Fertilization was only 100 lbs. 0-0-60 broadcast in Spring. No insecticide was applied.

Bud Smith, Auglaize Road, Auglaize Township

	TREATMENT	VARIETY	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	No-Till	Williams	--	14.0%	28.0	$168.00	$ 52.95

Planted June 24 with the Tye Drill and White 30" planter at a seed drop of 180,000. Sprayed with 1 qt. Paraquat 2.5 pts. of Dual and 1 lb. of Sencor with 40 gal. of water as the carrier. No fertilizer applied.

TABLE 22. 1981 SOYBEAN TILLAGE COMPARISON PRODUCTION COSTS SUMMARY*

Farm	No-till				Plow					Disc				
	Herbicides	Fertilizer	Other	TOTAL	Herbicides	Fertilizer	Tillage	Other	TOTAL	Herbicides	Fertilizer	Tillage	Other	TOTAL
Apollo Vo-Ag	37	45	69	151	27	45	23	65	160	27	45	21	65	157
L. Bassett										22	0	35	61	118
Bluffton Vo-Ag	29	0	63	92	18	0	30	59	107	18	0	28	60	106
V. Burkholder					27	7	23	60	117	27	7	21	60	115
R. Clum	55	0	63	119						18	0	21	61	100
R. DeLong	57	27	64	147						20	0	27	61	108
D. Ernest	31	0	69	100	23	0	29	60	112					
D. Ernest					23	0	29	64	115					
D. Hefner	45	0	64	109						20	0	22	61	103
Hutchinson Bro					26	0	34	65	125					
G. Kneble	58	0	64	122	9	0	34	61	104					
L. Lugibihl	39	0	64	103						39	0	15	61	115
B. Spallinger					40	19	29	60	147					
Spencer Vo-Ag	36	0	64	100	25	0	33	61	119	25	0	30	60	115
Spencer Vo-Ag					25	0	33	61	119					
Averages	43	8	65	116	24	7	30	62	123	24	6	24	61	115

* In Dollars

1981 NO-TILL SOYBEAN PLOTS
WITHOUT COMPARISONS
TABLE 23

FARM	YIELD	NET RETURN	FARM	YIELD	NET RETURN
F. Arnold	37.0	$122.50	L. Lugibihl	45.7	$175.40
J. Begg	37.1	125.75	K. Miller	37.0	86.54
B. Begg #1	26.4	38.88	B. Reese	41.0	123.65
B. Begg #2	32.0	94.53	M. Rumbaugh	33.4	77.76
R. Bowdle	30.6	92.53	W. Plikerd	31.0	84.53
G. Brooks	42.5	149.21	B. Smith	28.0	52.95
D. Kihm	49.1	178.85	R. Stratton	52.0	196.76
			Average No-Till w/o Comparison	37.3	$111.58
			Average All No-Till Plots	37.4	$111.25

TABLE 22. Cont. 1981 SOYBEAN TILLAGE COMPARISON PRODUCTION COSTS SUMMARY *

Chisel								
Herbicides	Fertilizer	Tillage	Other	TOTAL	No-till Net Value/Returns	Plow Net Value/Returns	Disc Net Value/Returns	Chisel Net Value/Returns
27	45	21	65	157	251/101	247/87	233/71	236/79
22	0	35	61	118			223/105	236/118
18	0	28	59	105	179/87	91/-16	193/87	166/61
27	7	21	59	115		199/82	213/98	185/70
					214/96		265/165	
					217/69		224/93	
23	0	26	60	109	228/128	209/97		214/104
						215/99		
					243/134		273/170	
26	0	32	65	113		226/101		242/120
					253/130	241/137		
					230/127		245/130	
22	19	26	60	127		156/9		156/29
25	0	30	61	116	217/117	247/128	189/74	217/102
						232/114		
24	9	27	61	120	226/110	206/84	229/110	207/85

* In Dollars

N O T E S

TABLE 24. TIME & FUEL FOR TILLAGE SUMMARY

Soybeans

Farm	No-till		Plow		Disc		Chisel	
	Time (Min.)	Fuel (Gal.)	Time (Min.)	Fuel (Gal.)	Time (Min.)	Fuel (Gal.)	Time (Min.)	Fuel (Gal.)
Apollo Vo-Ag*	30	1.6	55	4.5	51	3.8	51	3.8
L. Bassett					66	4.5	66	4.5
Bluffton Vo-Ag	15	.8	53	4.5	49	3.8	49	3.8
V. Burkholder			45	3.8	41	3.1	41	3.1
R. Clum	15	.8			41	3.1		
R. DeLong	15	.8			41	3.1		
D. Ernest*	30	1.6	56	4.5			52	3.6
D. Hefner	15	.8			41	3.1		
Hutchinson Bro.			57	4.7			53	4.0
G. Kneble	15	.8	45	3.8				
L. Lugibihl	15	.8			33	2.5		
B. Spallinger			51	4.3			47	3.6
Spencer. Vo-Ag	15	.8	65	4.5	61	3.8	61	3.8
Average	18	1.0	53	4.3	47	3.4	53	3.8
Average Cost of Time and Fuel for Tillage and Planting	$3.30		$11.34		$9.56		$10.74	
Percent of No-till's Cost	100%		340%		290%		325%	

Note: Assume Fuel costs $1.20/gallon and skilled labor is $7.00/hour.
* Field was double planted with 30" planter for 15" rows.

ECONOMIC DATA OBSERVATIONS

Soybeans

1. 1981 soybean economic results were the exact opposite of corn. No-till and discing were the treatments with the highest return. Fall plowing returned the least per acre. (Table 26)
2. Over a two year period there was very little difference in the average return for each treatment. No-till $183/ac., plow $188/ac., and discing $195/ac.
3. On the average, returns for 1981 were less than 50% of the return netted in 1980. This held true for all tillage systems and was due to the late date of planting of the soybean crop.
4. In comparing Table 22. the average costs for soybeans are similar in characteristics to corn no-till herbicide cost is higher but the tillage costs of the other plots is even higher. Table 24. also show the time and fuel cost are about three times that of the no-till treatment.
5. If current trends continue the profitability outlook for no-till soybeans looks excellent.

TABLE 25. SOYBEAN YIELDS IN RELATION TO ROW SPACING
(ALL PLOTS NO-TILL)

Farm	30"	15"	7 or 8"
Apollo Vo-Ag		41.9	
F. Arnold		37.0	
J. Begg			37.1
B. Begg			32.0
Bluffton Vo-Ag	29.9		
R. Bowdle			30.6
G. Brooks			42.5
R. Clum			35.7
R. DeLong		37.3	
D. Ernest		38.0	
D. Hefner			40.5
D. Kihm			49.1
C. Kneble			42.1
L. Lugibihl			38.3
K. Miller	41.1	38.9	36.2
M. Rumbaugh		26.3	33.4
W. Plikerd	31.0		
Spencerville Vo-Ag	36.2		
R. Stratton			52.0
Average	34.6	36.6	39.1
Number of Tests	4	6	12

TABLE 26. TWO YEAR COMPARISON OF SOYBEAN NET RETURNS BY TILLAGE SYSTEM

YEAR	FARM	NO-TILL	FALL PLOW	SPRING PLOW	OFFSET DISC	DISC-CHISEL
1981	Spencer. Vo-Ag	$117	$128	$114	$ 74	$102
	Apollo Vo-Ag	104	87		76	79
	Bluffton Vo-Ag	87	-16		87	61
	D. Ernest	128		94		104
	G. Knebel	130	137			
	R. Clum	96			165	
	R. Delong	73			93	
	D. Hefner	134			170	
	L. Lugibihl	127			130	
	V. Burkholder		82		98	70
	Hutchinson Bros.		101			120
	B. Spallinger		17			29
	L. Bassett				105	118
	1981 Average	$111	$ 77	$106	$111	$ 85
1980	R. Fischer	$232	$286			
	M. Hershberger		$309		$285	
	C. Kiracofe	278			271	
	1980 Average	$255	$298	--	$278	--
	Two Year Average	$183	$188	--	$195	--
	Number of Observations Ranked First	4/11 (36%)	4/9 (44%)	0/2 (0%)	6/11 (55%)	3/8 (38%)

TILLAGE COMPARISONS OBSERVATIONS FOR SOYBEAN

The 1981 plots for soybean were greatly increased over 1980's. The option of using mulch-till or no-till in all phases of crop rotation has proved favorable this year for soybeans. Below are the observations we have made.

1. This years results were opposite of corn. No-till and offset discs were highest yielding treatments, while fall plow was lowest yielding treatment. (See Table 27.)
2. Plow results were reversed in 1981 as compared to the 1980 results.
3. Offset discing showed the highest degree of success for two years of testing.
4. On the Dave Hefner plot the disc beans were planted 8 days ahead of the no-till beans. This was due to equipment scheduling reasons and not to soil conditions.

TABLE 27. TWO YEAR COMPARISON OF SOYBEAN YIELDS BY TILLAGE SYSTEMS

YEAR	FARM	NO-TILL	FALL PLOW	SPRING PLOW	OFFSET DISC	DISC-CHISEL
1981	Spencer. Vo-Ag	36.2	41.2	38.7	31.5	36.2
	Apollo Vo-Ag	41.9	41.2		38.8	39.3
	Bluffton Vo-Ag	29.9	15.2		32.1	27.7
	D. Ernest	38.0		35.8		35.6
	G. Knebel	42.1	40.1			
	R. Clum	35.7			44.1	
	R. Delong	36.1			37.2	
	D. Hefner	40.5			45.5	
	L. Lugibihl	38.3			40.9	
	V. Burkholder		33.2		35.5	30.8
	Hutchinson Bros.		37.2			40.0
	B. Spallinger		26.0			26.0
	L. Bassett				37.2	39.4
	1981 Average	37.6	33.4	37.3	38.1	34.4
1980	R. Fischer	44.5	49.7			
	M. Hershberger		52.2		48.7	
	C. Kiracofe	43.8			48.1	
	1980 Average	44.2	51.0	--	48.4	--
	Two Year Average	40.9	42.2	--	43.3	--
	Number of Observations	3/11	4/9	0/2	7/11	3/8
	Ranked First	(27%)	(44%)	(0%)	(64%)	(38%)

5. The no-till treatment in the Ross Clum plot was hurt by smartweed pressure. Smartweed came back because it was 12-15" tall when sprayed with Paraquat. It was learned this year that Paraquat will not control existing smartweed at this height.

6. Bluffton Vo-Ag fall plow plot had water damage, but these areas were avoided when yield check taken.

7. Highest yield of all fields checked (conventional and no-till) was no-till beans planted in soybean stubble on the Rodney Stratton farm (Table 23.).

8. Even though the Bill Reese farm had a volunteer corn problem the beans yielded 41 bushel. Elevator report showed very little foreign matter as the corn didn't mature. (Table).

9. Bud Smith and Fred Arnold plots were planted in Rye 5-6 feet tall. This practice is not recommended.

10. The yield and row spacing in Table 25.is provided for information purposes. Don't place too much emphasis on these results due to the limited number of comparisons and only one year of data.

NO-TILL SOYBEAN HERBICIDE TEST PLOTS

Soybean herbicide plots were carried out on the Bill Begg Farm. These plots involved comparisons of 3 different grass herbicides, and post-emergent applications of two broadleaf herbicides. The soybeans in this plot were planted into undisturbed corn stocks using a no-till drill. The field had a large amount of lodged corn from the previous fall which contributed to heavy volunteer corn pressure. This field was selected because of heavy weed pressure, especially grasses. Spraying of these plots was done courtesy of Pandora Sohigro Service Center, using a floater rig which applied 40 gallons of water per acre.

All of the above plots were evaluated for degree of weed control and the results are shown in Table 28. The evaluation was carried out by a visual rating of the plots by 3 impartial individuals. These individuals then agreed upon a composite overall rating. A poor, fair, good, or excellent rating was used to describe the control. In addition to the difference in herbicide performance, difference in weed control in 30" versus narrow row soybeans was also observed. These results are listed in the Comments section.

HERBICIDE PLOT OBSERVATIONS

Bill Begg Farm

1. Both post-emergent herbicides increased broadleaf weed control.
2. Prowl and Dual provided better grass control than Surflan.
3. Broadleaf control was rated equal in all plots where post-materials were not used. However, broadleaf control appeared to be slightly better in the Prowl plot.
4. Volunteer corn was not controlled or affected by any of the different herbicide combinations that were used.
5. The staining action of Prowl and Surflan provided some guidance to the driver during the no-till spraying process.
6. There was no nutsedge pressure in this plot.

Soybean Row-Width Plots

1. The following observations were made with regard to weed control and row width of soybeans:
   - Wes Plikerd - Slightly better weed control was observed in the 15" row beans as opposed to the 30" row beans.
   - Ken Miller - Weed control was better in the 30" row beans than the drilled beans. Both plots were rated poor.
   - Bill Reese - No weed control difference was observed between the drilled and 30" row beans.

Volunteer Corn

1. Volunteer corn was a problem in only 2 of the 16 fields planted to no-till beans following corn stalks.
2. In both cased the corn did not mature to grain and elevator dockage was very low.
3. The two problem fields were associated with a significant amount of down corn the previous fall.
4. On the Bill Reese farm, no difference was observed in the amount of volunteer corn in either the rowed or drilled beans. Hoelon did an excellent job of removing volunteer corn.

TABLE 28. 1981 NO-TILL SOYBEAN HERBICIDE COMPARISONS

Bill Begg Farm

Plot	Rate	Chemical	Cost	Controlled			Not Controlled
				Grasses	Broadleafs	Volunteer Corn	
1	1.0 qt	Paraquat	$10.78	Good	Good	Poor	--
	1.0 pt/40 gal solution	X-77	1.66				
	.75 lb	Sencor-Lexone 50W	7.73				
	3.0 pt	Surflan	13.90				
	1.0 qt	Blazer	19.14				
			$53.21				
2	1.0 qt	Paraquat	$10.78	Good	Good	Poor	--
	1.0 pt/40 gal solution	X-77	1.66				
	.75 lb	Sencor/Lexone 50W	7.73				
	3.0 pt	Surflan	13.90				
	1.0 qt	Basagran	19.38				
			$53.45				
3	1.0 qt	Paraquat	$10.78	Fair	Fair	Poor	Ragweed
	1.0 pt/40 gal solution	X-77	1.66				
	.75 lb	Sencor/Lexone 50W	7.73				
	3.0 pt	Surflan	13.90				
			$34.07				
4	1.0 qt	Paraquat	$10.78	Exc	Fair	Poor	Ragweed
	1.0 pt/40 gal solution	X-77	1.66				
	.75 lb	Sencor/Lexone 50W	7.73				
	2.5 pt	Prowl	10.28				
			$30.45				
5	1.0 qt	Paraquat	$10.78	Exc	Fair	Poor	Ragweed
	1.0 pt/40 gal solution	X-77	1.66				
	.75 lb	Sencor/Lexone 50W	7.73				
	2.5 pt	Dual 8E	13.85				
			$34.02				

DOUBLE CROP SOYBEANS

1981 was the first year that the District has offered assistance with double crop in the no-till program. Due to the good weather conditions in the first part of July, several farmers took the wheat off early and drying it so we were able to get much of the double crop planted by the 10th of July.

We had approximately 1,229 acres of double crop soybeans in the county this year with 349 acres planted with District Equipment. On the following pages are the results of some of the plots that ran yield checks. We also had double crop variety plot in which there were 35 varieties each grouped by maturity. This plot was on the Fred Arnold farm. (plot information on page 68) The double crop soybeans experienced slow growth due to lack of moisture and heat units in August and an early frost stunted the plants and therefore hurt many of the yields.

Dale Jostpile, Lincoln Highway, Sugar Creek Township

TREATMENT	VARIETY	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
No-Till	Voris 285	--	13.6%	8.0	$ 48.00	$-34.86

Planted July 9 with the Tye Drill at a seed drop of 440,300. Sprayed with 1.5 pts. of Paraquat and .66 lbs. of Lexone D.F. No fertilizer applied.

Norman Heidlebaugh, Allentown Road, Amanda Township

TREATMENT	VARIETY	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
No-Till	Williams	--	--	6.2%	$ 37.20	$-41.35

Planted July 7 in 8 inch rows with the Tye Drill at a seed drop of 203,200 (80 lbs.) Sprayed with 1 pt. Paraquat and 2.5 pt. Dual. No fertilizer applied or insecticide.

Ned Althaus, Napoleon Road, Richland Township

TREATMENT	VARIETY	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
No-Till	Varied	--	14.5%	12.0	$ 72.00	$ -7.71

Planted July 11 with the White 15" planter at a seed drop of 225,000 per acre. Spray with 1 qt. Basagram by airplane. No fertilizer or insecticide applied.

Fred Arnold, Napoleon Road, Richland Township

TREATMENT	VARIETY	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
No-Till	Variety Plots	--	15.4%	13.0	$ 77.76	$-14.67

Planted July 8 with the White 15" planter at a seed drop of 200,000. Sprayed with 1 qt. Paraquat, 2.5 pts. Dual, and .75 Sencor. No fertilizer or insecticide applied.

Mark Hershberger, Reservoir Road, Jackson Township

TREATMENT	VARIETY	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
No-Till	SRF-200-Pella	160,000	--	13.5%	$ 81.00	$ -4.10

Planted July 9 with the White 15" planter at a seed drop of 160,000. Sprayed with 1 pt. Parquat, 1 lb. Sencor and 2 qt. Lasso. No fertilizer or insecticide applied.

Greg Kruger, Napoleon Road, Jackson Township

TREATMENT	VARIETY	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
No-Till	SRF-200 & NK-1474	--		27.3	$163.80	$ 77.72

Planted July 10 with the White 15" planter at a seed drop of 263,250 (90#). Sprayed with .25 pt. Paraquat, .5 lbs. Sencor and 2 qt. Lasso. No fertilizer or insecticide applied.

Ray Dorley, Bowman Road, Perry Township

TREATMENT	VARIETY	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
No-Till	SRF-307	--	14.0%	12.0	$ 72.00	$-21.39

Planted July 10 with the Tye Drill at a seed drop of 240,300 seeds per acre. Sprayed with 1 qt. Paraquat, 1 qt. Dual and .75 lbs. Lexone. No fertilizer or insecticide applied.

Doug Post, Spencerville Road, Amanda Township

TREATMENT	VARIETY	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
No-Till	NK-1474	266,400	14.0%	5.0	$30.00	$-50.68

Planted July 5 with the Tye Drill at a seed drop of 266,400 per acre. Sprayed with .7 lb. of Sencor, 1.25 lbs. Surflan and 1 pt. Paraquat with Cittowet-Sticker. No fertilizer or insecticide applied.

Dave Moser, Bentley Road, Riley Township, Putnam Co.

TREATMENT	VARIETY	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
No-Till	Agripro 26 Asgrow 3127		15.0%	10.0	$ 60.00	$-22.48

Planted July 9 with the M&W Drill at a seed drop of 196,350 on part of the field and 244,800 on the rest of the field. No fertilizer applied. Crop was sprayed with 1 qt. Paraquat, 1 lb. of Sencor and 2.5 lbs. of Lasso.

Ron Delong, Wapakoneta Road, Duchouquet Township, Auglaize Co.

TREATMENT	VARIETY	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
No-Till	Amsoy	--	13.0%	16.0	$ 96.00	$ 9.71

Planted July 6 in 15 inch rows with a seed drop of 284,900 (110 lbs.). Sprayed with 1 qt. Paraquat, 2 qt. Lasso and .5 lbs. of Lexone D.F. No fertilizer or insecticide applied.

DOUBLE CROP VARIETY PLOTS

Fred Arnold, 7845 N. Napoleon Rd., Columbus Grove, Ohio 45830

ALL GROUPS

Planted 7/8/81 No-Till Following Wheat in 15" rows Harvested 11/3/81

	Moisture	Yield @13% M		
NK 1492	15.0	16.9		
Gutwein 212	14.4	11.7		
Gold Tag 1250	15.3	8.9		
Gutwein 331 (Tester)	14.9	13.9		
Vickery	15.3	11.9		
Migro 20-20	14.1	21.6		
Amcor	14.8	13.4	Ave. Group K	14.0
Shawnee	15.4	13.4		
Shawnee II	13.4	15.7		
Century	14.4	15.2		
Gutwein 331 (Tester)	14.4	14.6		
Gutwein 221	14.4	7.5		
Wellman 245	15.1	9.0		
Agripro 250	14.2	12.9	Ave. Group L	12.6
Pella	14.1	13.1		
Agripro 26	14.6	16.5		
Migro 25-30	14.2	16.9		
Gutwein 331 (Tester)	14.2	13.7		
Warren	14.7	11.4		
Thompson 250	14.5	9.1		
IB 123	14.5	8.3	Ave. Gro M	12.7
Cumberland	16.6	13.0		
Wellman 335	16.3	14.0		
IB 1245	17.4	10.3		
Gutwein 331 (Tester)	14.5	14.0		
Thompson 350	16.5	16.5		
NK 32-67	16.6	15.3		
Asgrow 3127	16.9	16.5	Ave. Group N	14.2
Williams '79	17.4	15.6		
Washington V	17.1	11.2		
Migro 3700	17.8	8.4		
Gutwein 331 (Tester)	16.8	9.4		
Callahan 7302 R	16.9	16.2		
Agripro 350	15.9	10.3		
Callahan 9400	16.6	7.8	Ave. Group O	11.3

1981 NO-TILL WHEAT PLOTS

In the fall of 1980 we had the use of a Moore Drill to plant no-till wheat. We had several farmers use the drill to plant wheat in bean stubble. In the fields where the bean straw was heavy there were problems with the drill plugging, but over all the drill worked well and we had good stands of wheat.

Two of the farms that had no-till wheat and a comparison plot reported their yields and cultural data. They are reported below. The no-till wheat had a greener color and germinated quicker than the conventional wheat. It also looked better through the winter months and into early Spring. On the one farm the no-till maintained a slight edge over the conventional plot up to harvest. The no-till on the other farm looked good thru early summer, then it contacted Septoria Glume Blotch which hurt the yield.

No-till wheat in Allen County has a lot of potential. With the advantage of planting wheat immediately after harvest and also conserving moisture, this could produce better standing high yielding wheat crops. With 1981 being only the first year we have worked with no-till wheat, testing in the next couple years will be necessary to prove our theory.

Kenny Miller, Zion Church Road, Amanda Township

	TREATMENT	HYBRID	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	Conventional	Ruler	--	11.5%	45.2	$158.20	$ 48.51
2.	No-Till	Ruler	--	12.4%	41.4	144.90	47.55

1. Conventional - Disc once - Roterra in front of drill.
2. No-Till - Drilled with Moore Drill.

Planted October 12, 1980 in 7 inch rows with 2 bushels per acre applied. 1980 crop was soybeans. Fertilizer included 296 lbs. of 14-14-14 broadcast with 260 lbs. of 28% sprayed early Spring, For a total of 113.8-41-41.

Meadowbrook Farms, Hanthorn Road, Perry Township

	TREATMENT	HYBRID	POPULATION	MOISTURE	YIELD	VALUE	NET RETURN
1.	Conventional	Titan	--	14.2%	33.9	$118.65	$ 12.51
2.	No-Till	Titan	--	14.2%	39.0	136.50	40.90

1. Conventional - Disc once drilled with cultimulcher in front.
2. No-till - Drilled with Moore Drill.

Planted October 15, 1980 in 7 inch rows with 3 bushels per acre applied. 1980 crop was soybeans. Fertilizer included 300 lbs. of 6-15-40 broadcast and 100 lbs. of Urea applied, For a total of 64-45-120.

ALLEN SWCD TILLAGE DEMONSTRATION

EQUIPMENT USE GUIDELINES

FALL TILLAGE EQUIPMENT

1. Equipment available is two Miller Discs and two Soil Savers each with a tractor. There will be no charge for the equipment when used on demonstration plots.

2. Demonstration plots are expected to include a comparison of at least two of the following tillage systems:

   (1) Fall or Spring Plow
   (2) Fall Soil Saver
   (3) Fall Offset Disc
   (4) Fall or Spring Light Disc
   (5) No-Till

   Comparisons shall be according to SWCD plot guidelines.

3. Maximum demonstration use will be 7 tachometer hours per tractor and tool. (10 hours if both used) Beyond this, $35/hour will be charged user.

4. Tractor will be filled with fuel by user when it leaves each farm.

5. Miller Disc and Soil Saver are only for corn, wheat stubble and sod. The coming year crop may be corn or beans. Plots should be weighed at harvest.

NO-TILL PLANTING EQUIPMENT

1. Four planters shall be available for no-till corn or soybeans. Two drills wil also be available for no-till soybeans and wheat.

2. Planters are primarily for no-till use but can be used for adjacent tillage plots to get a uniform comparison. This use should be minimum size needed to get comparison and be done at same time as the no-till planting.

3. There will be no charge for planters. Use per farm should average approximately 15 acres or less. Use beyond 20 acres per farm will be only with special permission if time is available with a charge of $30/hour.

4. A comparison plot is desirable but not required when using no-till planters. All plantings will be weighed however, except corn silage.

5. Dry fertilizer will be used. Farmer is to supply and any analysis may be used.

6. Planters are not available for replant except on fields in the plot program.

GENERAL CONDITIONS

1. All farms using equipment shall be signed up as SWCD cooperator. SWCD office staff shall have final decision on timing, scheduling and field selection.

2. Users shall keep records of all cultural practices for field where equipment is used and allow tours of crops.

3. Demonstration plots will be included in the County Pest Management Program at no charge.

Revised Fall 1981

1982 PLOT APPLICATION

ALLEN COUNTY
CONSERVATION TILLAGE DEMONSTRATIONS
WATER QUALITY PROJECT
1982 CROP YEAR

LANDOWNER COMMITTMENT:

The undersigned hereby agrees to carryout a conservation tillage demonstration on his farm, in accordance with the attached equipment use guidelines.

ALLEN SWCD COMMITTMENT:

The undersigned hereby agrees to give priority assistance to the below named in carrying out conservation tillage demonstrations. Assistance will include:

Equipment Availability
Planting & Harvesting Assistance
Pest Management Assistance
Soil Testing

IT IS MUTUALLY AGREED:

1. To use approved practices for demonstrations
2. To keep good records and publish all results
3. To cooperate in tours and field days
4. That SWCD will schedule equipment use for the good of the project

DEMONSTRATIONS PLANNED:	PLOT 1	PLOT 2	PLOT 3	PLOT 4
1. Crop to Plant				
2. Type of Tillage				
3. Acres in Plot				
4. Equipment Needed				
5. Remarks				

REQUESTED:

RECEIVED:

LANDOWNER _____ DATE _____

ALLEN S.W.C.D. _____ DATE _____

NOTE: If more requests are received than can be honored selection will be made by SWCD Board of Supervisors based on date of request, type of demonstration, and suitability of field.

ALLEN SWCD DEMONSTRATION PROJECT

1982 PLOT DATA & PEST MANAGEMENT APPLICATION

NAME _____ ADDRESS _____ PHONE _____

1982 CROP _____ PAST CROP _____ 1983 CROP _____ ACRES IN FIELD ____

TREATMENTS	NO-TILL	FALL PLOW	SPRING PLOW	DISC	CHISEL	OTHER	
Acres of Each (Approx)							

FIELD LOCATION & PLOT SKETCH:

NORTH

Show roads, bldgs., fences, ect.

PAST WEED & INSECT PROBLEMS:

DRAINAGE IN FIELD: Surface - Good _____ Fair (Avg.) _____ Poor _____

Tile - Complete _____ Random _____ None _____

USUAL CROP ROTATION: _____ _____ _____ _____

REMARKS:

_____ _____

Signature Date